

United Republic of Tanzania

NATIONAL SAMPLE CENSUS OF AGRICULTURE
2002/2003

Volume Vo: REGIONAL REPORT: **RUKWA REGION**



Cattle Rearing



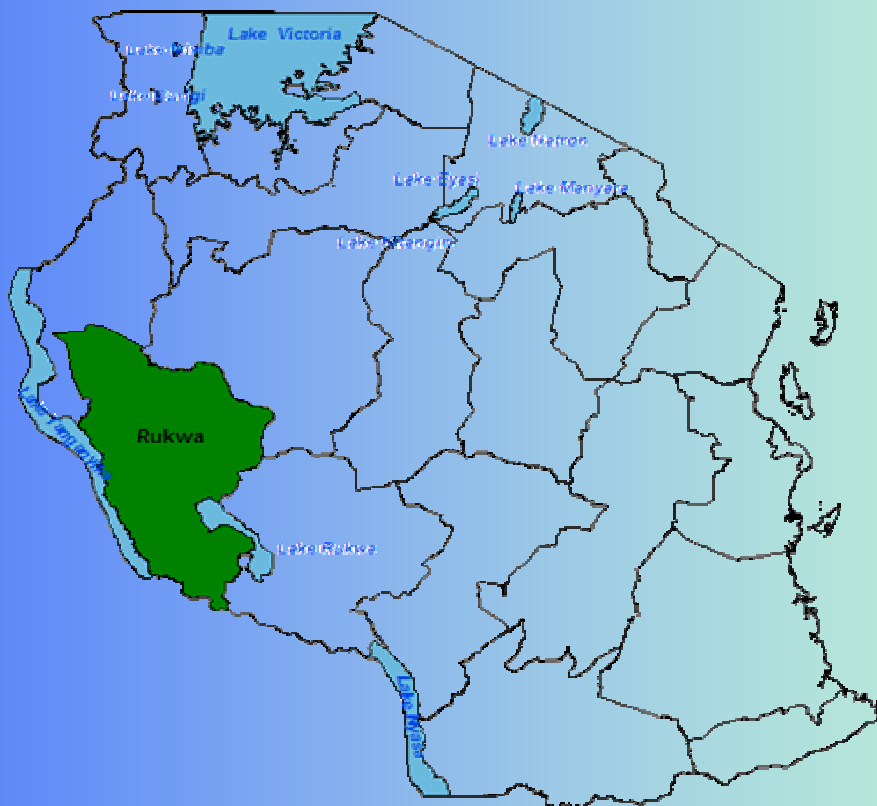
Fish Harvesting



Eggs Production



Maize Planting



Paddy Growing



Hand Cultivation



Indigenous Chicken



Irrigation Practice



Orange Marketing



Cassava Planting



Goat Rearing



United Republic of Tanzania

**NATIONAL SAMPLE CENSUS
OF AGRICULTURE
2002/2003**



VOLUME VI: REGIONAL REPORT: RUKWA REGION

*National Bureau of Statistics, Ministry of agriculture and Food Security,
Ministry of Water and Livestock Development, Ministry of Cooperatives and Marketing,
Presidents Office, Regional Administration and Local Government,
Ministry of Finance and Economic Affairs – Zanzibar*

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ACRONYMS

<i>ASDP</i>	<i>Agricultural Sector Development Project</i>
<i>CSPro</i>	<i>Census and Survey Processing Program</i>
<i>DFID</i>	<i>Department For International Development</i>
<i>DIAS</i>	<i>District Integrated Agricultural Survey</i>
<i>DS</i>	<i>District Supervisor</i>
<i>EAS</i>	<i>Expanded Agricultural Survey</i>
<i>EAs</i>	<i>Enumeration Areas</i>
<i>EU</i>	<i>European Union</i>
<i>FE</i>	<i>Field Enumerator</i>
<i>GDP</i>	<i>Gross Domestic Product</i>
<i>Ha</i>	<i>Hectares</i>
<i>IAS</i>	<i>Integrated Agricultural Survey</i>
<i>ICR</i>	<i>Intelligent Character Recognition</i>
<i>IEC</i>	<i>Information, Education and Communication</i>
<i>JICA</i>	<i>Japanese International Cooperation Agency</i>
<i>LRS</i>	<i>Long Rainy Season,</i>
<i>MAFS</i>	<i>Ministry of Agriculture and Food Security</i>
<i>MCM</i>	<i>Ministry of Co-operatives and Marketing</i>
<i>MWLD</i>	<i>Ministry of Water and Livestock Development</i>
<i>NBS</i>	<i>National Bureau of Statistics</i>
<i>NGO</i>	<i>Non Governmental Organization</i>
<i>NMS</i>	<i>National Master Sample</i>
<i>NSCA</i>	<i>National Sample Census of Agriculture</i>
<i>NSGRP</i>	<i>National Strategy for Growth and Reduction of Poverty</i>
<i>PORALG</i>	<i>President's Office, Regional Administration and Local Government</i>
<i>PPS</i>	<i>Probability Proportional to Size</i>
<i>PSU</i>	<i>Primary Sampling Unit</i>
<i>RAAS</i>	<i>Rapid Appraisal Agricultural Survey</i>
<i>RS</i>	<i>Regional Supervisor</i>
<i>RSM</i>	<i>Regional Statistical Manager</i>
<i>SAC</i>	<i>Scotts Agriculture Consultancy Ltd</i>
<i>SPSS</i>	<i>Statistical Package for Social Science</i>
<i>SRS</i>	<i>Short Rainy Season</i>
<i>TOT</i>	<i>Training of Trainers</i>
<i>ULG</i>	<i>Ultek Laurence Gould</i>
<i>UNDP</i>	<i>United Nations Development Programme</i>
<i>UNFAO</i>	<i>United Nations Food and Agriculture Organization</i>
<i>VPO</i>	<i>Vice President Office</i>

PREFACE

At the end of the 2002/03 Agriculture Year, the National Bureau of Statistics and the Office of the Chief Government Statistician in Zanzibar in collaboration with the Ministries of Agriculture and Food Security; Water and Livestock Development; Cooperatives and Marketing as well as the Presidents Office, Regional Administration and Local Government (PORALG) conducted the Agriculture Sample Census. This is the third Agriculture Census to be carried out in Tanzania, the first one was conducted in 1971/72, the second in 1993/94 and 1994/95 (during 1993/94 data on household characteristics and livestock count were collected and data on crop area and production in 1994/95).

It is considered that this census is one of the largest to be carried out in Africa and indeed in many other countries of the world. The census collected detailed data on crop production, crop marketing, crop storage, livestock production, fish farming, tree farming, access to infrastructures and services and poverty indicators.

In addition to this, the census was large in its coverage as it provides data that can be disaggregated at district level and thus allow comparisons with the 1998/99 District Integrated Agricultural Survey. The census covered smallholders in rural areas only and large scale farms. This report presents Rukwa region data disaggregated to district level. It was very difficult to discuss all variables collected in a single report hence the analysis was based on the most important smallholder variables. The rest of the variables are found in the attached annex of table of results. The analysis in the report includes time series comparisons using data from the previous censuses and surveys.

The extensive nature of the census in relation to its scope and coverage is a result of the increasing demand for more detailed information to assist in the proper planning of this sector and in the administrative decentralization of planning to district level. It is hoped that this report will provide new insights for planners, policy makers, researchers and others involved in the agricultural sector in order to improve the prevailing conditions faced by crop producers and livestock keepers in the country.

On behalf of the Government of Tanzania, I wish to express my appreciation for the financial support provided by the development partners, in particular, the European Union as well as DFID, UNDP, Japanese Government, JICA and others who contributed through the pool fund mechanism.

Finally, my appreciation goes to all those who in one-way or the other contributed to the success of the survey. In particular, I would also like to mention the enormous effort made by the Planning Group composed of professionals from the Agriculture Statistics Department of the National Bureau of Statistics (NBS), the Office of the Chief Government Statistician in Zanzibar (OCGS) and the Statistics Unit of the Ministry of Agriculture and Food Security (MAFS) with technical assistance provided by Ultec Lawrence Gould (ULG), Scotts Agriculture Consultancy Ltd and the Food and Agriculture Organisation of the United Nations (FAO).

Additionally, I would like to extend my appreciation to all professional staff of the National Bureau of Statistics, the sector Ministries of Agriculture and PORALG, the Consultants as well as Regional and District Supervisors and field enumerators for their commendable work. Certainly without their dedication, the census would not have been such a success.

Albina A. Chuwa
The Director General
National Bureau of Statistics

EXECUTIVE SUMMARY

The executive summary highlights the main survey results obtained during the National Sample Census of Agriculture 2002/03. This report covers small-scale agriculture households in rural areas of Rukwa region who were selected using statistical sampling techniques. The results in the report do not cover urban areas and large-scale farmers.

The highlights describe the important findings in relation to agricultural production, productivity, husbandry, access to resources, levels of involvement in agricultural related activities and poverty in Rukwa region activities indicators for one to get an overview, at regional level, of the rural agricultural households and their levels of involvement in agricultural related activities.

i) Household Characteristics

The number of agricultural households in Rukwa region were 172,261 out of which 114,069 (67.3%) were involved in growing crops only, 416 (0.2%) rearing livestock only and 57,776 (33.5%) were involved in crop production as well as livestock. However, there was no pastoralist which was found in the region.

Most of the agricultural households ranked annual crop farming as an activity that provides most of their cash income followed by tree/forest resources, off-farm income, livestock keeping/herding, permanent crops remittances and fishing/hunting and gathering.

The region has a literacy rate of 72 percent. The highest literacy rate was found in Sumbawanga Rural and Sumbawanga Urban districts with (75%) followed by Nkasi district (71%) and Mpanda district (70%).

The number of heads of agricultural households with formal education in Rukwa region was 118,763 (67%), those without formal education were 53,498 (31%) and those with only adult education were 6,019 (4%). The majority of heads of agricultural households (69%) had primary level education whereas only 3 percent had post primary education.

In Rukwa region 59,888 household members (35%) were involved in one off-farm income generating activity, 53,457 (31%) involved in two off-farm income generating activities and 18,456 (11%) involved in more than two off-farm income generating activities.

ii) Crop Production

▪ Land Area

The total area of land available to smallholders was 574,291 ha. The regional average land area utilised for crop production per crop growing household was only 2.4 ha. This figure is below the national average of 2.0 hectares.

▪ Planted Area

The area planted with annual crops and vegetables was 303,393 hectares out of which 1,049 hectares (0.3%) were planted during short rainy season and 302,345 hectares (99.7%) during long rainy season.

An estimated area of 203,500 ha (67.3% of the total planted area with annual and vegetable crops) was with cereals, followed by 77,017 hectares (18.0%) of pulses, (37,551 hectares, 12.4%), of roots and tubers, (28,595 hectares, 9.5%), oil seeds (28,178 hectares, 9.3%), cash crops (3,295 hectares (1.1%) and fruits and vegetables, (1,225 hectares (0.4%).

▪ **Cereal Crop Production**

The total production of cereals was 240,623 tonnes from a total planted area of 203,928 hectares. These cereal crops include: Maize, Paddy, Finger Millet, Sorghum, Wheat and Bulrush Millet

▪ **Maize**

Maize is the dominant annual crop grown in Rukwa region and it had a planted area 4.56 times greater than beans, which had the second largest planted area. The area planted with maize constitutes 73.6 percent of the total area planted with annual crops. Other crops in order of their importance (based on area planted) are paddy, finger millet, sorghum, wheat, bulrush millets.

▪ **Paddy**

Paddy is the second most important cereal crop in the region in terms of planted area. The number of households that grew paddy in Rukwa region during the long rainy season was 30,132. This represented 17.6 percent of the total crop growing households in Rukwa Region in the long rainy season.

• **Roots and Tuber Crops Production**

The total production of roots and tubers crops was 45,702 tonnes from planted area of 28,594 hectares. These root and tuber crops included: cassava, sweet potatoes, irish potatoes, yams and cocoyam.

▪ **Cassava**

The area planted with cassava was larger than any other root and tuber crop in Rukwa in terms of planted area (8.3% of the total area planted with annual crops and vegetables) and it accounted for 87 percent of the area planted with roots and tubers.

▪ **Oil Seed Production**

The total production of oilseed crops was 17,419 tonnes planted on an area of 28,520 hectares. These oil crops included groundnuts, sunflowers, soya beans and simsim.

Pulse Crops Production

The total area planted with pulses was 37,831 hectares. This area was planted with beans, bambaranuts, green grams, cowpeas and field peas.

▪ **Fruit and Vegetables**

The total production of fruit and vegetables was 4,211 tonnes. The most cultivated fruit and vegetable crop was tomatoes. The production for this crop was 2,136 tonnes, which amounts to 48 percent of the total fruit and vegetable production, followed by cabbage 3,472 tonnes (18%) and chilies 1,973 tonnes (10%). The production of the other fruit and vegetable crops was relatively small.

▪ **Permanent Crops**

The area of smallholders planted area with permanent crops was 62,403 hectares which is 13 percent of the area planted with annual crops in the region. The most important permanent crop is coconuts which accounts for 24 percent of the total area planted with permanent crops followed by oranges (15%), banana (13%) and cashew (13%).

Improved Seeds

The planted area using improved seeds was 52,089 ha which represents 13 percent of the total planted area with the annual crops and vegetables. The percentage use of improved seed in the short rainy season was 13.4 percent which is slightly higher than the corresponding percentage use for the long rainy season (12.73%).

Use of Fertilizers

Most annual crop growing households do not use any fertiliser. The planted area without fertiliser for annual crops was 367,237 hectares representing 85.6 percent of the total planted area with annual crops. Of the planted area with fertiliser application, farm yard manure was applied to 45,411 ha which represented 10.6 percent of the total planted area (73.3 % of the area planted with fertiliser application). This was followed by compost (12,491 ha, 20.1%). Inorganic fertilizers were used on a very small area and represented only 6.6 percent of the area planted with fertilizers.

Irrigation

In Rukwa region, the area of annual crops and vegetables under irrigation was 41,089 ha representing 9.6 percent of the total area planted. The area under irrigation during the short rainy season was 8,088 ha accounting for 20 percent of the total area under irrigation. However, the percentage of the planted area under irrigation during the long rainy season was 12.3 percent compared with 5 percent in the short rainy season.

Crop Storage

There were 228,187 crop growing households (87% of the total crop growing households) that reported storing various agricultural products in the region.

The most important stored crop was maize with 220,402 households storing 28,187 tonnes as of 1st January 2004. This was followed by beans and pulses (104,155 households and 1,914 tonnes), paddy (14,828 households and 827 tonnes) and groundnuts and bambara nuts (1,674 households and 54 tonnes). The rest of the crops were stored in very small amounts.

Crop Marketing

The number of households that reported selling crop was 197,168 which represents 74.8 percent of the total number of crop growing households. The percent of crop growing households selling crops was highest in Muheza (84%) followed by Lushoto (80%), Rukwa (77%), Kilindi (76%), Pangani (70%) Korogwe (65%) and Handeni (64%).

Agricultural Credit

In Rukwa region, few agricultural households (1,022, 0.4%) accessed credit, out of which 453 (44%) were male-headed households and 569 (56%) were female headed households. In Lushoto district only female headed households got credit for agriculture purposes, whereas in Korogwe, Rukwa and Handeni districts only male households accessed credit. In Muheza district both male and female headed households accessed credit.

Crop Extension Services

The number of agricultural households that received crop extension was 121,486 (46% of total crop growing households in the region). Some districts have more access to extension services than others (Chart 3.96). Korogwe district had a relatively high proportion of households that received crop extension messages (84%), followed by Lushoto (49%), Muheza (43%), Pangani (39%), Kilindi (27%), Handeni (22%) and Rukwa (14%).

- **Soil Erosion and Water Harvesting Facilities**

The number of agricultural households that reported the presence of soil erosion and water harvesting facilities in their farms was 30,288. This number represents 11 percent of total number of agricultural households in the region. The proportion of farmers with soil erosion control and water harvesting facilities was highest in Lushoto District (23%) followed by Korogwe (10%), Muheza (8%), Kilindi (3%), Handeni (2%), Rukwa (1%) Pangani (0.5%).

- iii) **Livestock and Poultry Production**

- **Cattle**

The total number of cattle in the region was 378,338. Cattle rearing is the dominant livestock type in the region followed by goats, sheep and pigs. The region had 2.2 percent of the total cattle population on the Tanzanian Mainland. The number of indigenous cattle was 350,210 head (92.6% of the total number of cattle in the region), 27,829 (7%) were dairy breeds and only 298 (1.4%) were beef breeds.

- **Goats**

The number of goat-rearing-households in the region was 68,764 (26% of all agricultural households) with a total of 514,620 goats giving an average of 7 head of goats per goat-rearing-households.

- **Sheep**

The number of sheep-rearing households was 35,381 (13% of all agricultural households) with a total of 164,209 sheep giving an average of 5 heads of sheep per sheep-rearing household.

- **Pigs**

The number of pig-rearing households in the region was 2,601 (1% of the total agricultural households) rearing about 6,281 pigs. This gives an average of 2 pigs per pig-rearing household.

- **Chicken**

The number of households keeping chickens was 176,806, raising 1,788,767 chickens. This gives an average of 10 chickens per chicken-rearing household. In terms of total number of chickens in the country Rukwa ranked eighth out of the 21 Mainland regions.

- **Use of Draft Power**

The region has 738 oxen and they were only found in two districts, Korogwe and Kilindi with 592 and 146 head respectively. Rukwa region has 0.03 percent of the total 2,233,927 head of oxen found on the Mainland and were used to cultivate 2,653 hectares of land.

- **Fish Farming**

The number of households involved in fish farming was 1,423 (0.5 percent of the total agricultural households in the region). Korogwe was the leading district with 634 agricultural households involved in fish farming (1.4%) followed by Lushoto 430 (0.5%), Muheza 336 (0.7%) and Rukwa 23 (0.3%). Fish farming was not practiced in Pangani and Handeni districts.

iv) Poverty Indicators**▪ Availability of Toilets**

It was estimated that 86.5 percent of all rural agricultural households used the traditional pit latrines, 1.8 percent used improved pit latrine and 0.7 percent had flush toilets. The remaining 0.1 percent of households had other unspecified types of toilets. Households with no toilet facilities represent 11 percent of the total agriculture households in the region.

▪ Household Assets

Out of all assets, radios had the highest percent of households owning them (61.3% of households) followed by bicycle (32.1%), iron (18.9%), wheelbarrow (3.4%), mobile phone (1.9%), television/video (1.0%), vehicle (0.9%) and landline phone (0.5%).

▪ Source of Lighting Energy

Wick lamp is the most common source of lighting energy in the region. About 77 percent of the total rural households used this source of energy followed by hurricane lamp (16.6%), pressure lamp (4.2%), mains electricity (1.3%), firewood (0.3%), solar (0.1%), candle (0.1%) and gas or biogas (0.1%).

▪ Energy for Cooking

The most prevalent source of energy for cooking was firewood, which was used by 96.4 percent of all rural agricultural households. The second most common source of energy for cooking was charcoal (2.72%). The rest of energy sources accounted for 0.88 percent. These were bottled gas (0.28%), crop residues (0.28%), mains electricity (0.14%), solar (0.10%), livestock dung (0.04%), paraffin/kerosene (0.03%) and gas/biogas (0.01%).

▪ Roofing Materials

The most used roofing material (for the main dwelling) was grass and/or leaves and it was used by 49.2 percent of the rural agricultural households however, this was closely followed by iron sheets (43.6%). Other roofing materials are grass/mud (4.8%), asbestos (1.1%), tiles (1.0%), concrete (0.1%) and others (0.2%).

▪ Number of Meals per Day

About 72.3 percent of the holders in the region took three meals per day, 25.2 percent took two meals, 2.4 percent took one meal and 0.1 percent took four meals.

▪ Food Security

Households which seldom had problems in satisfying their food needs represent 42 percent of the total number of agriculture households in the region. Households with recurring food shortage problems represent 8.3 percent whereas those with little problems represent 7.6 percent. About 7 percent of agriculture households always faced food shortages whilst 35 percent had not experienced any food shortage problems.

- **Main Source of Cash Income**

Selling of food crops was the main cash income earning activity reported by 25.5 percent of all rural agricultural households. The second main cash income earning activity was casual labour (20.9%) followed by selling of cash crops (16.8%), businesses (14.3%) and cash remittances (7.4%). Other income earning activities were employment (5.0%), sale of livestock (4.0%), sale of forest products (2.5%), sale of livestock products (1.7%) and fishing (0.9%).

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1. BACKGROUND INFORMATION

1.1 Introduction

This part of the report presents a brief description of the regional profile by providing information on geographical location, land area, climate, administrative set up, population and socio-economic indicators. The information will provide the user with a general understanding of the region and its resources.

1.2 Geographical Location and Boundaries

Rukwa region is situated in the South West of the country between Latitude 5⁰ and 9⁰degrees south of Equator and between Longitudes 30⁰ and 33 degrees East. A good part of Rukwa region lies within the Western branch of east African Rift Valley known as the “ Western rift Land Province”

Rukwa region, with an area of 75,240 sq. km, (68,635 sq. km. of land and 6,605sq. km. of inland water), takes up about 8% of the total land of Tanzania Mainland.

The region is bordered by Zambia in the South West, Lake Tanganyika in the west, Ki8goma region in the North west, Tabora region in the North East and Mbeya region in the East.

The region comprises four districts namely Mpanda Sumbawanga Rural, Nkasi and Sumbawanga Urban.

Land Area

The region has an area of over 340,000 square kilometers, of which 28,695 square kilometers are arable land.

1.4 Climate

The region enjoys favourable climate conditions, varying from a dry sub-humid climate.

Rainfall: Rukwa region has an average rainfall ranging from 800mm. to 1,300mm
The region has one main rainy season; from mid November to mid May,
that is long rains (Wet) season

Temperature: The Mean annual maximum temperature in the region varies between 24⁰C and 27⁰C and the minimum temperature between 13⁰C and 16⁰C.

1.5 Population

According to the 2002 Population and Housing Census, there were 1,642,015 inhabitants in Rukwa region. The population of Rukwa region ranked 10th out of the 21 regions in Tanzania.

1.6 Socio - Economic Indicators

The regional Gross Domestic Product (GDP) at current prices for the year 2003 was estimated to be TShs 348,926 millions with a per capita income of shillings 236,115. The region held 10th position among regions on GDP and contributed about

4.3 percent to the national GDP¹

Rukwa region is famous for limestone and gypsum mineral deposits, all of which are used in the cement factory situated in the region.

The region is famous for producing both food crops. The main food crops produced in Rukwa region include: maize, paddy, beans and sorghum. Livestock keeping is also an important economic activity in the region.

¹ Hali ya Uchumi wa Taifa Katika Mwaka 2003

2. INTRODUCTION

This part of the report provides the technical and operational description of the National Sample Census of Agriculture (NSCA), carried out in the rural areas of Tanzania Mainland and Zanzibar during the 2002/03 agricultural year. It details the background and the rationale for carrying out the NSCA in 2002/03 agricultural year. It also explains the sampling procedures, designing and implementation of the data processing system.

2.1 The Rationale for Conducting the National Sample Census of Agriculture

In 2003, the Government of Tanzania launched the Agricultural Sample Census as an important part of the Poverty Monitoring Master Plan which supports the production of statistics for advocacy of effective public policy, including poverty reduction, access to services, gender, as well as the standard crop production data normally collected in an agriculture census. The census is intended to fill the information gap and support planning and policy formulation by high level decision making bodies. It is also meant to provide critical benchmark data for monitoring Agriculture Sector Development Programme (ASDP) and other agriculture and rural development programs as well as prioritising specific interventions of most agriculture and rural development programs.

Following the decentralisation of the Government's administration and planning functions, there has been a pressing need for agriculture and rural development data disaggregated at regional and district levels. The provision of district level estimates will provide essential baseline information on the state of agriculture and support decision making by the Local Government Authorities in the design of District Agricultural Development and Investment Projects (DADIPS). The increase in investment is an essential element in the national strategy for growth and reduction of poverty.

This report (Volume V) is among the 21 regional reports for the mainland. Other Census reports include the Technical Report (Volume I), crop sector at national and regional levels including Zanzibar estimates (Volume II), Livestock Report (Volume III), Smallholder Household Characteristics and Access to Natural Resources Report (Volume IV), 21 Regional Reports for the Mainland (Volume V), Large Scale Farms Report (Volume VI) and a separate report for Zanzibar (Volume VII). In order to address the specific issue of gender, a separate thematic report on gender has been published. Other thematic reports will be produced depending on the demand and availability of funds. In addition to these reports two dissemination applications have been produced to allow users to create their own tabulations, charts and maps.

The report is divided into five main sections: Background Information, Introduction, Results, Evaluation and Conclusion and Appendices. The definitions relating to all aspects of this report can be found in the questionnaire (Appendix III).

2.2 Census Objectives

The 2003 Agriculture Sample Census was designed to meet the data needs of a wide range of users down to district level including policy makers at local, regional and national levels, rural development agencies, funding institutions, researchers, Non government Organisations (NGOs), farmer organisations, etc. As a result, the dataset is both more numerous in its sample and detailed in its scope compared to previous censuses and surveys. To date this is the most detailed Agricultural Census carried out in Africa. The census was carried out in order to:

- Identify structural changes if any, in the size of farm household holdings, crop and livestock production, farm input and implement use. It also seeks to determine if there are any improvements in rural infrastructure and in the level of agriculture household living conditions;

-
- Provide benchmark data on productivity, production and agricultural practices in relation to policies and interventions promoted by the Ministry of Agriculture and Food Security and other stake holders.
 - Establish baseline data for the measurement of the impact of high level objectives of the Agriculture Sector Development Programme (ASDP), National Strategy for Growth and Reduction of Poverty (NSGRP) and other rural development programs and projects.
 - Obtain benchmark data that will be used to address specific issues such as: food security, rural poverty, gender, agro-processing, marketing, service delivery, etc.

2.3 Census Coverage and Scope

The census was conducted for both large and small scale farms. The National Sample Census of Agriculture covered a total of 3,221 selected rural villages of Tanzania Mainland out of which 215 villages were from Rukwa region.

The census covered agriculture in detail as well as many other aspects of rural development and was conducted using three types of questionnaires:

- Small scale farm questionnaire
- Community level questionnaire
- Large scale farm questionnaire

The small scale farm questionnaire was the main census instrument and it includes questions related to crop and livestock production and practices; population demographics; access to services, resources and infrastructure; issues on poverty, gender and subsistence versus profit making production units. The main sections covered are as follows:

- Identification (i.e. region, district, ward and village)
- Household and holding characteristics
- Household information
- Land ownership/tenure
- Land use
- Access and use of resources
- Crop and vegetable production
- Agro processing and by-Products
- Crop storage and marketing
- On-farm investment
- Access to farm inputs and implements
- Use of credit for agricultural purposes
- Tree farming/agro-forestry
- Crop extension services
- Livelihood constraints
- Animal contribution to crop production
- Livestock
- Livestock products
- Fish farming
- Livestock extension
- Labour use

-
- Access to infrastructure and other services
 - Household facilities

The community level questionnaire was designed to collect village level data such as access and use of common resources, community tree plantation and seasonal farm gate prices.

The large scale farm questionnaire was administered to large scale farms that were either privately or corporately managed. There will be a national report on large scale farming on Tanzania Mainland.

2.4 Legal Authority of the National Sample Census of Agriculture

The NSCA 2002/03 was conducted under the legal authority of the 2000 National Bureau of Statistics Act which, among other things, makes data collected from individuals strictly confidential and to be used for statistical purposes only.

2.5 Reference Period

Two types of reference periods were used namely the agricultural year and the reference date for livestock enumeration. The agricultural year 2002/03 (that is October 2002 to September 2003) was used for the data items that are related to crop production. The reference date of enumeration for livestock and poultry count was 1st October 2003.

2.6 Census Methodology

The main focus at all stages of the census execution was on data quality and this is emphasised in this section. The main activities undertaken include:

- Census organisation
- Tabulation plan preparation
- Sample design
- Design of census questionnaires and other instruments.
- Field protesting of the census instruments
- Training of trainers, supervisors and enumerators
- Information Education and Communication (IEC) campaign
- Data Collection
- Field supervision and consistency checks
- Data processing:
 - Scanning
 - ICR extraction of data
 - Structure formatting application
 - Batch validation application
 - Manual data entry application
 - Tabulation preparation using SPSS
- Table formatting and charts using Excel, map generation using Arc-View and Freehand.
- Report preparation using Word and Excel.

2.6.1 Census Organization

The Census was conducted by the National Bureau of Statistics in collaboration with the sector ministries of agriculture, and the Office of the Chief Government Statistician in Zanzibar. At the national level the Census was headed by the Director General of the National Bureau of Statistics with assistance from the Director of Economic Statistics. The Planning Group, made up of staff from the National Bureau of Statistics, Department of Agricultural Statistics and three representatives from the Ministry of Agriculture and Food Security (Department of Policy and Planning), oversaw the overall operational aspects of the Census. At the regional level, implementation of census activities was overseen by the Regional Statistical Officer of NBS and the Regional Agriculture Supervisor from the Ministry of Agriculture and Food Security. At the District level, two supervisors from the President's Office, Regional Administration and Local Government (PORALG), managed the enumerators who also came from the same ministry.

Members of the Planning Group had a minimum qualification of a bachelor degree, the regional supervisors were either agricultural economists, statisticians or statistical officers. The district supervisors and enumerators had diploma level qualifications in agriculture.

The Census and Surveys Technical Working Group provided support in sourcing financing, approving budget allocations and technical assistance inputs as well as monitoring the progress of the census. A Technical Committee for the census was established with members from key stakeholder organisations (i.e. NBS, sector ministries of agriculture, President's Office, Planning and Privatization (POPP), PORALG, University of Dar es Salaam (UDSM), Tanzania Food and Nutrition Centre (TFNC) and the Office of Chief Government Statistician (OCGS) in Zanzibar). The main function of the committee was to approve the proposed instruments and procedures developed by the Planning Group. It also approved the tabulations and analytical reports prepared from the Census data.

2.6.2 Tabulation Plan

The tabulation plan was developed following three user group workshops and thus reflects the information needs of the end users. It took into consideration the tabulations from previous census and surveys to allow trend analysis and comparisons.

2.6.3 Sample Design

The Mainland sample consisted of 3,221 villages. These villages were drawn from the National Master Sample (NMS) developed by the National Bureau of Statistics (NBS) to serve as a national framework for the conduct of household based surveys in the country. The National Master Sample was developed from the 2002 Population and Housing Census. In most cases, within each selected village, data was collected from a sub-sample of fifteen agricultural households. In few large villages thirty households were selected. The total Mainland sample was 48,315 agricultural households. In Zanzibar a total of 317 EAs were selected and 4,755 agricultural households were covered. Nationwide, all regions and districts were sampled with the exception of three urban districts (two from Mainland and one from Zanzibar).

In both Mainland and Zanzibar a stratified two stage sample was used. In the first stage, villages/enumeration areas (EAs) were selected with probability proportional to the number of villages in each district. In the second stage, 15 households were selected from a list of farming households in each Village/EA using systematic random sampling. Table 2.1 gives the sample size of households, villages and districts for Tanzania Mainland and Zanzibar.

Table 2.1: Census Sample Size

Number of	Mainland	Zanzibar	Total
Households	48,315	4,755	53,070
Villages/Eas	3,221	317	3,539
Districts	117	9	126
Regions	21	5	26

2.6.4 Questionnaire Design and Other Census Instruments

The census questionnaires were designed following user/producer meetings to ensure that the information collected was in line with their data needs. Several features were incorporated into the design of the questionnaire to increase the accuracy of the data:

- Where feasible all variables were extensively coded to reduce post enumeration coding error.
- The definitions for each section were printed on the opposite page so that the enumerator could easily refer to the instructions whilst interviewing the farmer.
- The responses to all questions were placed in boxes printed on the questionnaire, with one box per character. This feature made it possible to use scanning and ICR technologies for data entry.
- Skip patterns were used to avoid asking unnecessary questions
- Each section was clearly numbered, which facilitated the use of skip patterns and provided a reference for data type coding for the programming of CSPro, SPSS and the dissemination applications.

Besides the questionnaires, there were other instruments used:

- Village listing forms that were used for listing households in the villages and from these list a systematic sample of 15 agricultural households were selected from each village.
- Training manual which was used by the trainers for the cascade/pyramid training of supervisors and enumerators. This manual was trainers guiding document on the procedures to follow during the training
- Enumerator Instruction Manual which was used as reference material.

2.6.5 Field Pre-Testing of the Census Instruments

The Questionnaire was pre-tested in five locations (Arusha, Dodoma, Tanga, Unguja and Pemba). This was done purposely to test the wording, flow and relevance of the questions and to finalise crop lists, questionnaire coding and manuals. In addition to this, several data collection methodologies had to be finalised, namely, livestock numbers in pastoralist communities, cut flower production, mixed cropping, use of percentages in the questionnaire and finalising skip patterns and documenting consistency checks.

2.6.6 Training of Trainers, Supervisors and Enumerators

Cascade/pyramid training techniques were employed to maintain statistical standards. The top level training was provided to 66 national and regional supervisors (3 per region plus Zanzibar). The trainers were members of the Planning Group and the trainees were from the National Bureau of Statistics and the sector ministries of agriculture. The second level training was for the district supervisors and enumerators. This training was conducted in the regions. In each region three training sessions were conducted for the district supervisors and enumerators. In addition to training in field level Census methodology and definitions, emphasis was placed on training the enumerators and supervisors in consistency checking. Tests were given to the enumerators and supervisors and the best 50 percent of the trainees were selected to administer the smallholder and community level questionnaires. This increased the number of interviews per enumerator but it also released finance to increase the number of supervisors and hence the Supervisor Enumerator Ratio. The household listing exercise was carried out by all trained enumerators.

2.6.7 Information, Education and Communication (IEC) Campaign

Information, Education and Communication (IEC) is an important aspect of any census/survey undertaking. This is due to the fact that inadequately informed and hence uncooperative citizens may jeopardize the entire census/survey. As far as the

2002/03 Agricultural Sample Census was concerned, the main objective of the IEC program was to sensitize and mobilize Tanzanians to support, cooperate and participate in the census exercise.

Radio, television, newspapers, leaflets, t-shirts and caps were used to publicise the Sample Census. T-shirts and caps were used by the field staff and the village chairmen as official uniforms during the field work. The village chairmen helped to locate the selected households.

2.6.8 Household Listing

The household listing exercise was done in seven days. During the listing exercise, forms ACLF1 and ACLF2 were administered. The information collected included the number of fields operated by the household, the number of different types of livestock and poultry. This information was used to determine the agricultural households. From the list of agricultural households, 15 households were selected for the interview. The selection was done using the Random Number Table.

2.6.9 Data Collection

Data collection activities for the 2002/2003 Agricultural Sample Census took three months from January to March 2004. The data collection methods used during the census were by interview and no physical measurements, e.g., crop cutting and field area measurement were taken. Field work was monitored by a hierarchical system of supervisors at the top of which was the Mobile Response Team followed by the national, regional, and district supervisors.

The Mobile Response Team consisted of three principal supervisors who provided overall direction to the field operation and responded to queries arising outside the scope of the training exercise. The mobile response team consisted of the Manager of Agriculture Statistics Department, Long-term Consultant and Desk Officer for the Census. Decisions made on definitions and procedures were then communicated back to all enumerators via the national, regional and district supervisors.

District supervision and enumeration were done by staff from the President's Office, Regional Administration and Local Government (PORALG). National and regional supervisions were provided by senior staff of the National Bureau of Statistics and the sector ministries of agriculture. During the household listing exercise 3,221 extension staff were used. For the enumeration of the small holder questionnaire, 1,611 enumerators were used and additional 5 percent enumerators were held in reserve in case of drop outs during the enumeration exercise.

2.6.10 Field Supervision and Consistency Checks

Enumerators were trained to probe the respondents until they were satisfied with the responses given before they recorded them in the questionnaire. The first check of the questionnaires was done by enumerators in the field during enumeration. The second check was done by the district supervisors followed by regional and national supervisors. Supervisory visits at all levels of supervision focused on consistency checking of the questionnaires. Inconsistencies encountered were corrected, and where necessary a return visit to the respondent was made by the enumerator to obtain the correct information. Further quality control checks were made through a major post enumeration checking exercise where all questionnaires were checked for consistencies by all supervisors in the district offices.

2.6.11 Data Processing

Data processing consisted of the following processes:

- Manual editing
- Data entry
- Data structure formatting
- Batch validation
- Tabulation
- Illustration production
- Report formatting

Manual Editing

Prior to scanning, all questionnaires underwent a manual cleaning exercise. This involved checking that the questionnaire had a full set of pages, correct identification and good handwriting. A score was given to each questionnaire based on the legibility and the completeness of enumeration. This score will be used to assess the quality of enumeration and supervision in order to select the best field staff for future censuses/surveys.

Data entry/Scanning and ICR extraction technologies

Scanning and ICR data capture technology was used for the small holder questionnaire. This not only increased the speed of data entry, it also increased the accuracy due to the reduction in keystroke errors. Interactive validation routines were incorporated into the ICR software to track errors during the verification process. The scanning operation was so successful that it is highly recommended that this technology be adopted for future censuses/surveys.

The Census and Surveys Processing Program (CSPro) was used to enter 2,880 of small holder questionnaires that were rejected by the Intelligent Character Recognition (ICR) extraction application.

Data structure formatting

A program was developed in visual basic to automatically alter the structure of the output from the scanning/extraction process in order to harmonise it with the manually entered data. The program automatically checked and changed the number of digits for each variable, the record type code, the number of questionnaires in the village, the consistency of the Village Identification (ID) code and saved the data of one village in a file named after the village code.

Batch validation

A batch validation program was developed in order to identify inconsistencies within a questionnaire. This is in addition to the interactive validation during the ICR extraction process. The procedures varied from simple range checking within each variable to more complex checking between variables. It took six months to screen, edit and validate the data from the smallholder questionnaire. After the long process of data cleaning, the results were prepared based on a pre-designed tabulation plan.

Tabulations

Statistical Package for Social Sciences (SPSS) was used to produce the Census results and Microsoft Excel was used to organize the tables and compute additional indicators.

Analysis and report preparation

The analysis in this report focuses on regional and district production estimates, districts comparisons and time series analysis. Microsoft Excel was used to produce charts; whereas Microsoft Word was used to compile the report.

Data quality

A great deal of emphasis was placed on data quality throughout the whole exercise from planning, questionnaire design, training, supervision, data entry, validation and cleaning/editing. As a result of this NBS believes that the Census is highly accurate and representative of what was experienced at field level during the Census year. With very few exceptions the variables in the questionnaire are within the norms for Tanzania and they follow expected time series trends when compared to historical data. Standard Errors and Coefficients of Variation for the main variables can be found in the Technical Report (Volume I).

2.7 Funding Arrangements

The Agricultural Sample Census was supported mainly by the European Union (EU) who financed most of the operational activities. Other funds for operational activities came from the Government of Tanzania, Government of Japan, United Nations Development Programme (UNDP) and other partners in the Pool Fund of the Vice President's Office (VPO). In addition to this, technical assistance was provided by the European Union (EU), Department for International Development (DFID) and Japanese International Cooperation Agency (JICA). Technical assistances were managed by Ultek Laurence Gould Consultants (ULG), Scotts Agriculture Consultancy Ltd (SAC) and the Food and Agriculture Organisation (FAO).

3. CENSUS RESULTS

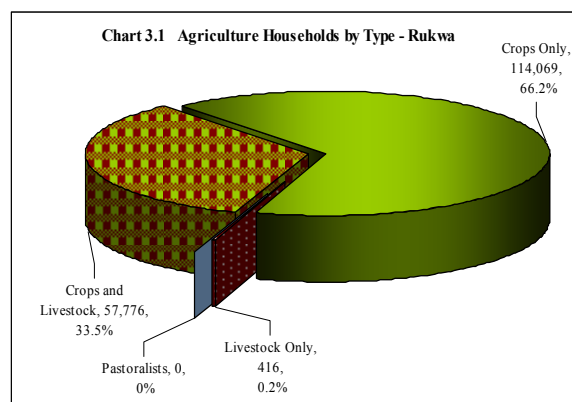
This part of the report presents the census results for Rukwa region based on the data tables in Appendix A2. The results are presented in different forms including brief summaries, charts, condensed tables, graphs and maps in order to make it easier for the users to understand. Comparisons are made between related variables and between districts. Comparisons are also made with past censuses/surveys results such as the 1994/95 National Sample Census of Agriculture (NSCA), the 1995/96 and the 1996/97 Expanded Agricultural Survey, the 1997/98 Integrated Agricultural Surveys, the 1998/99 District Integrated Agricultural Survey and the 1999/00 Rapid Agricultural Appraisal Survey. The presentation of results is divided into four main sections which are household characteristics, crop results, livestock results and poverty indicators compared to previous censuses and surveys, more effort has been made in analyzing the results in order to formulate solid conclusions.

3.1 Household Characteristics

3.1.1 Type of Household

The number of agricultural households in Rukwa region was 172,261. The largest number of agriculture households was in Sumbawanga Rural (68,935) followed by Mpanda (59,533), Nkasi (30,483) and Sumbawanga Urban (13,309) (Map 3.1). The highest density of households was found in Sumbawanga Urban (22 households/km²) and Sumbawanga Rural (13 households/ km²) (Map 3.2).

Most households (114,069 66.2%) were involved in growing crops only, 416 households (0.2%) rearing livestock only and 57,776 (33.5%) were involved in crop production as well as livestock keeping (Chart 3.1) (Map 3.3, 3.4, 3.5 and 3.6).



3.1.2 Livelihood Activities/Source of Income

The census results for Rukwa region indicates that most of the agricultural households ranked annual crop farming as an activity that provides most of their cash income followed by tree/forest resources, off-farm income, livestock keeping/herding, permanent crops, remittances, and fishing/hunting and gathering.

(Table 3.1)

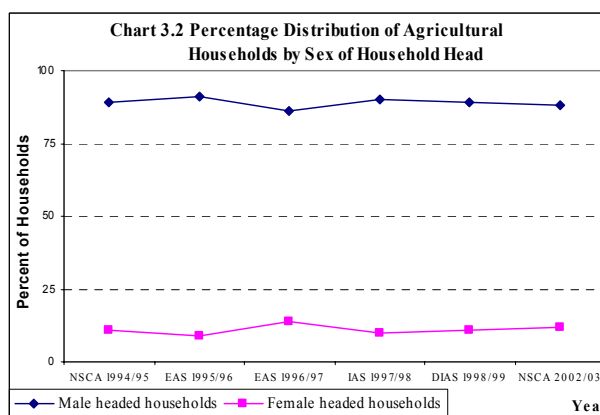
Table 3.1 The Livelihood Activities/Source of Income of the Households Ranked in Order of Importance by District

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Mpanda	1	5	4	3	6	7	2
Sumbawanga R	1	6	4	3	5	7	2
Nkasi	1	7	4	3	6	5	2
Sumbawanga U	1	6	4	3	5	7	2
Total	1	5	4	3	6	7	2

Sumbawanga Rural and Sumbawanga Urban were the only districts where remittances were the fifty most important source of livelihood. Moreover, Nkasi was the only district where fishing/hunting and gathering was the fifth most important source of livelihood.

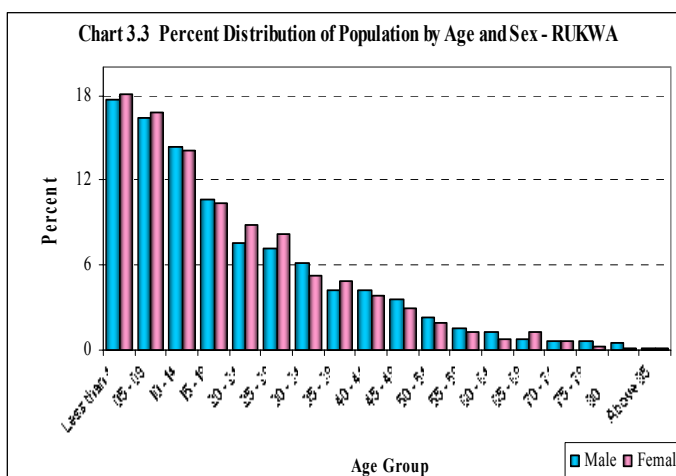
3.1.3 Sex and Age of Head of Households

The number of male-headed agricultural households in Rukwa region was 150,902 (88% of the total regional agricultural households) whilst the female-headed households were 21,359 (12% of the total regional agricultural households). The mean age of household heads was 41 years (40 years for male heads and 46 years for female heads) (Chart 3.2) The percentage trend for six censuses/surveys years shows that there has not been any significant change in the distribution of agricultural households between male and female headed households.



3.1.4 Number and Age of Household Members

Rukwa region had a total rural agricultural population of 942,269 of which 476,244 (51%) were males and 466,024 (49%) were females. Whereas age group 0-14 constituted 48 percent of the total rural agricultural population, age group 15–64 (active population) was only 46 percent. Rukwa region had an average household size of 5.5 with Sumbawanga Rural district having the lowest household size of 5. (Chart 3.3)

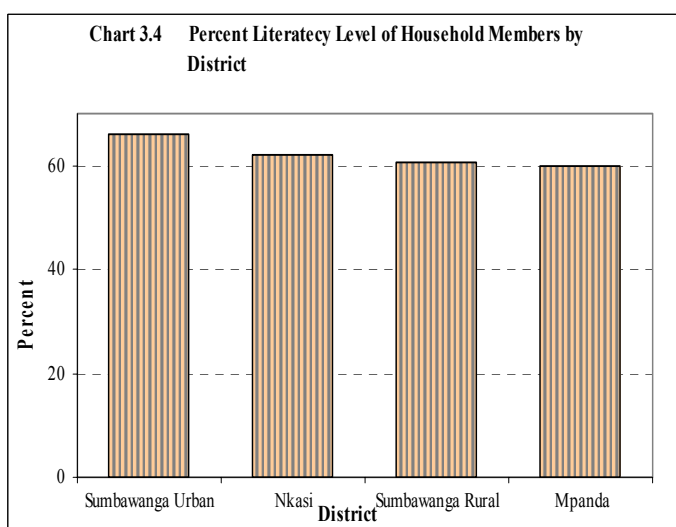


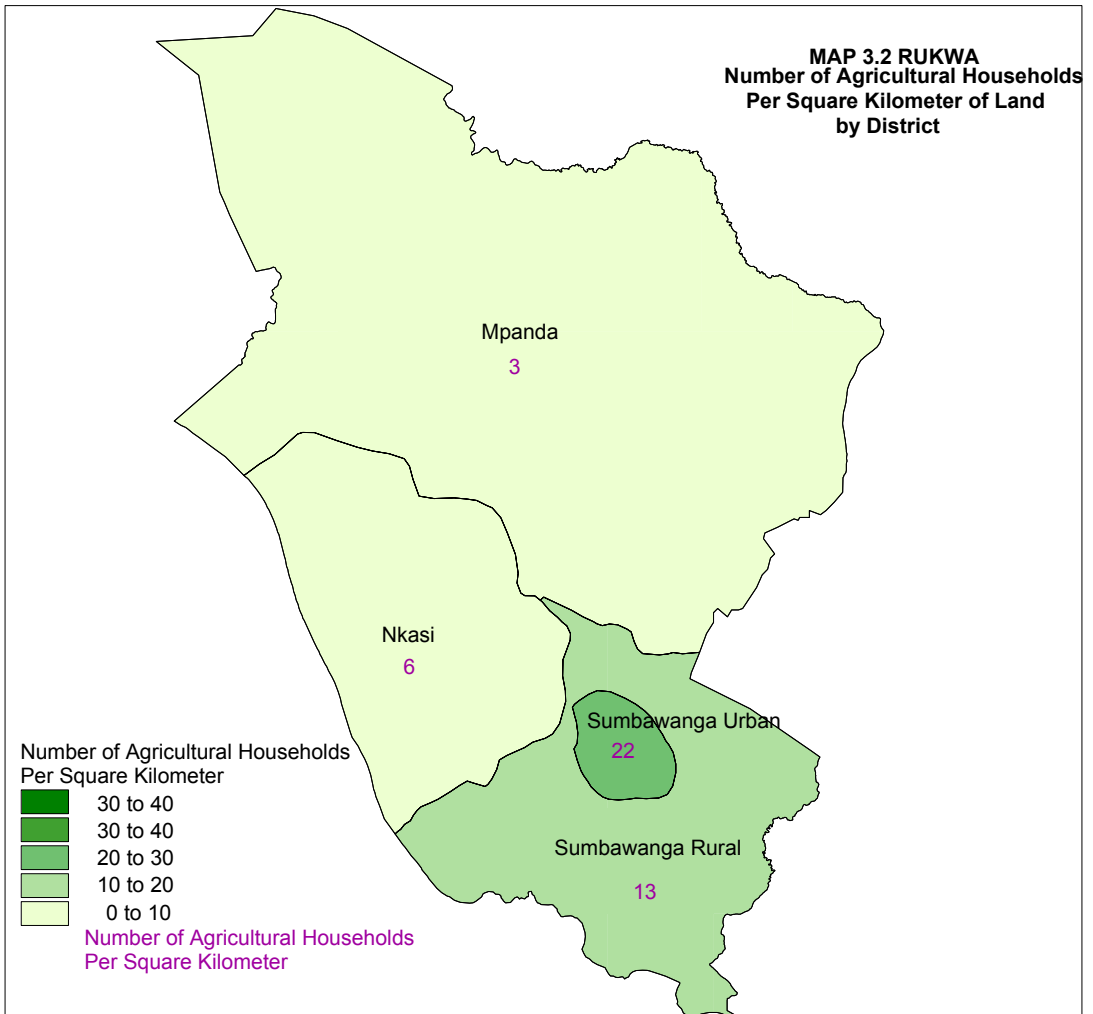
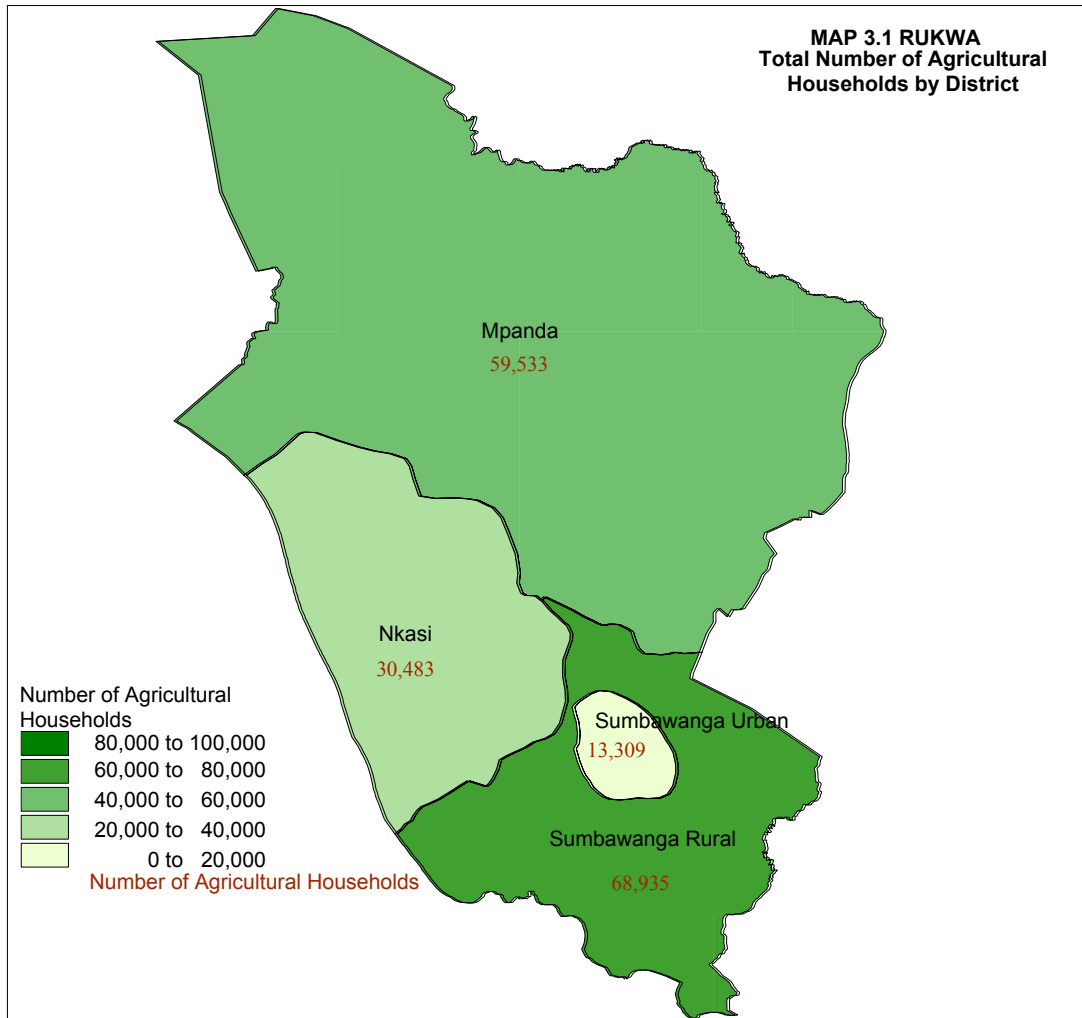
3.1.5 Level of Education

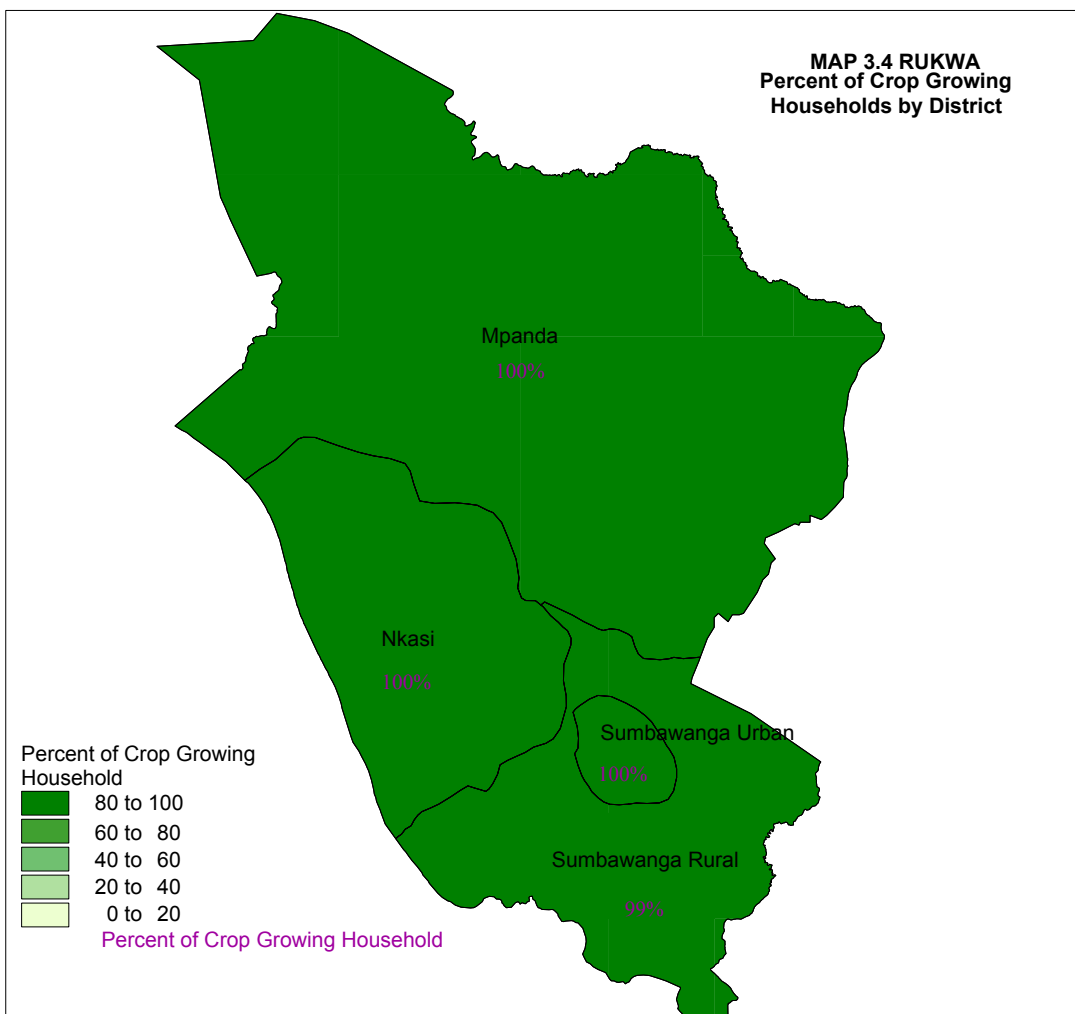
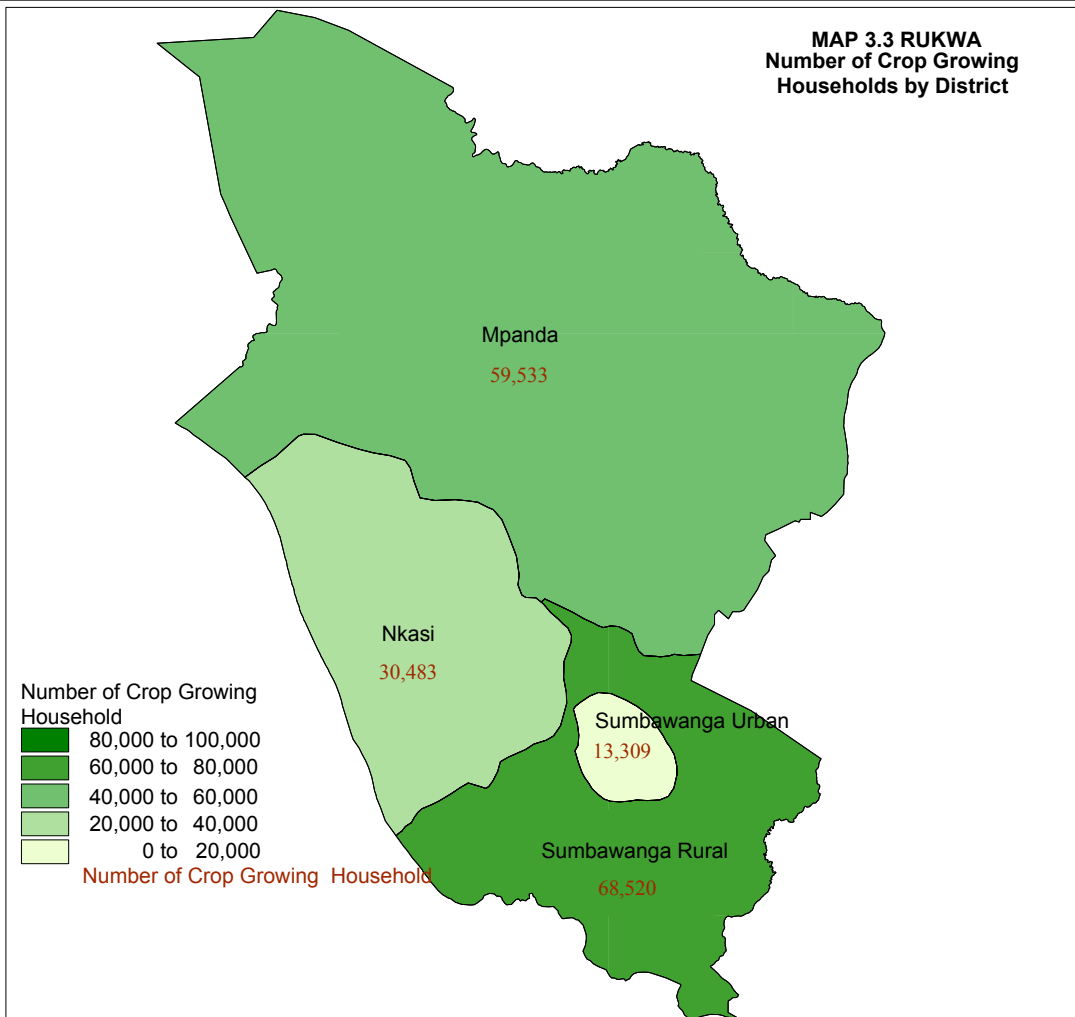
In order to obtain information on the level of education, data was gathered from all persons aged five years and above in all selected households.

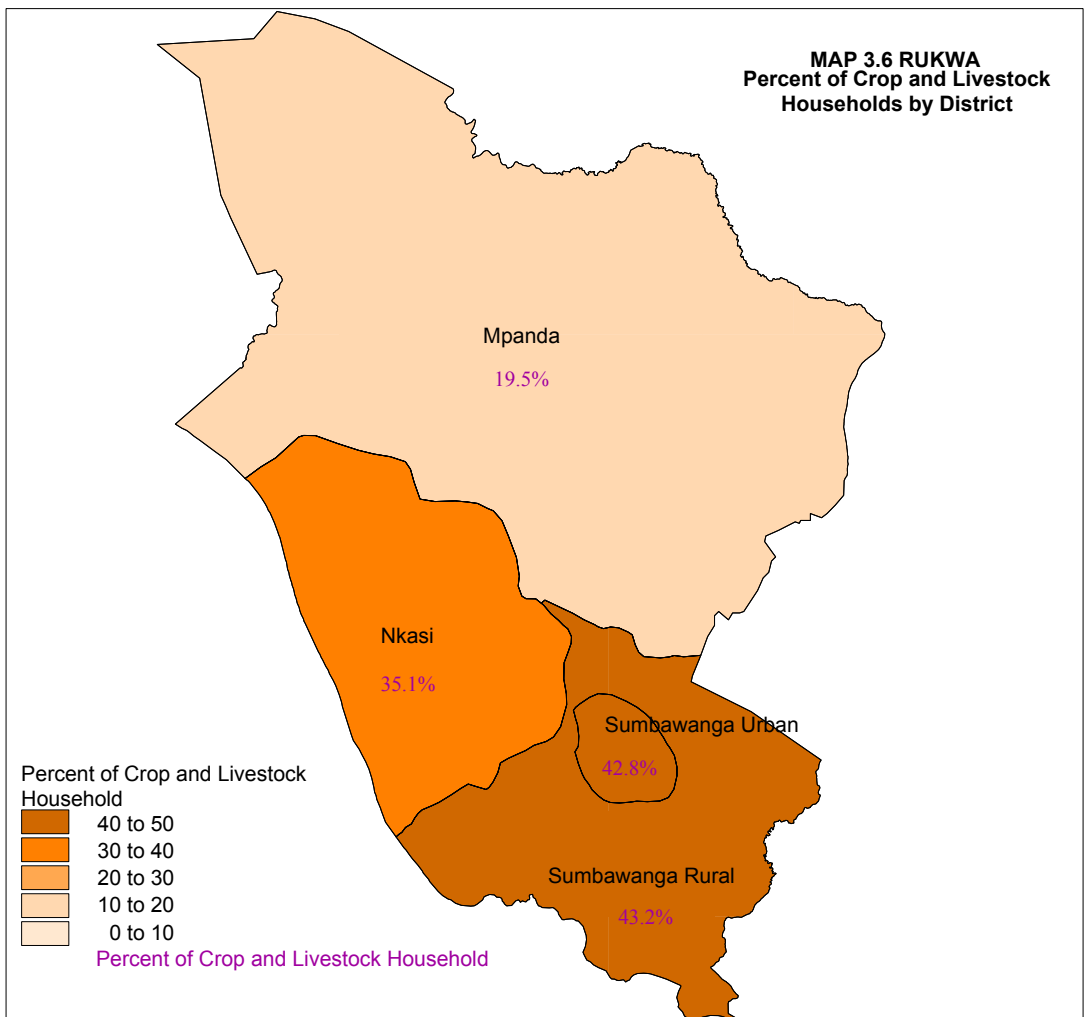
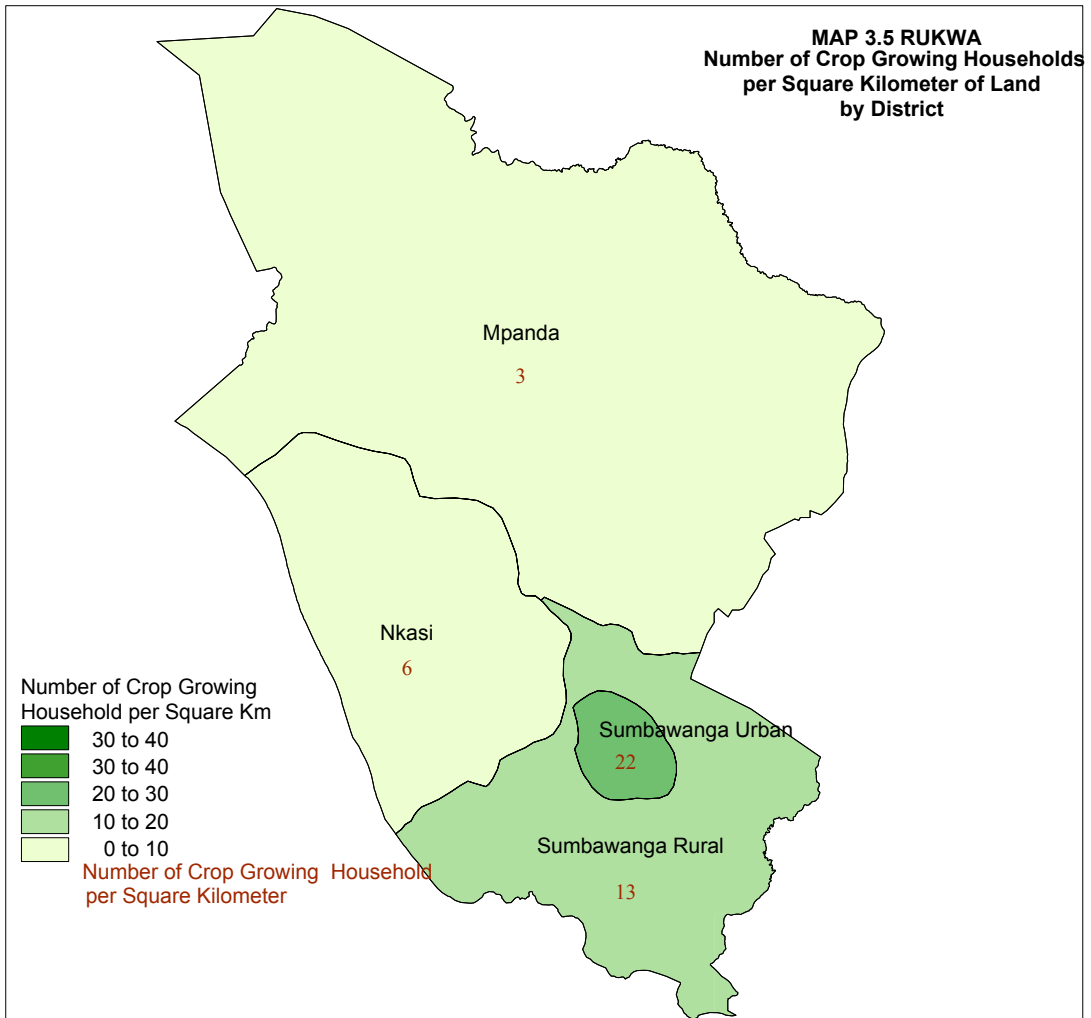
Literacy

The information on literacy level for family members aged five years and above was obtained by asking individual private households if their respective family members could read and write in Kiswahili only, English only, both English and Swahili or in any other language. Literacy is based on the ability to read and write Swahili, English or both.







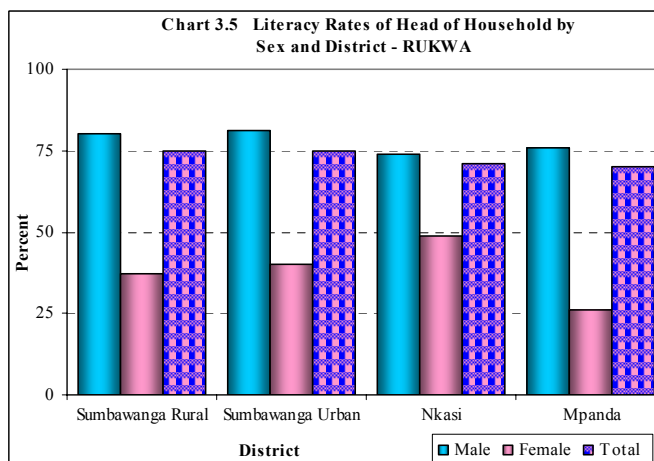


Literacy Level for Household Members

Rukwa region had a total literacy rate of 61 percent. The highest literacy rate was found in Sumbawanga Urban (66%) followed by Nkasi district (62%) and Sumbawanga Rural district (65%). Mpanda district had the lowest literacy rates of (60%) (Chart 3.4).

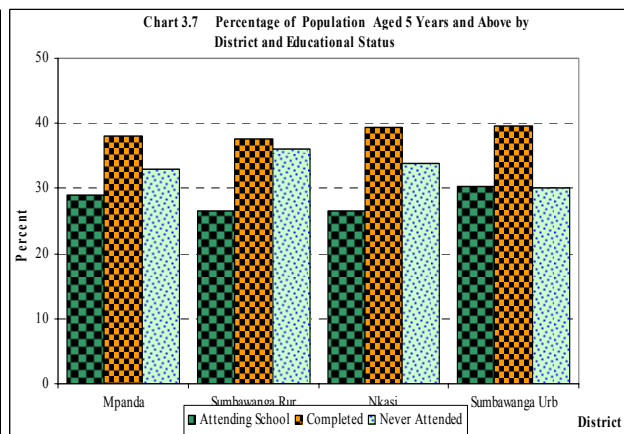
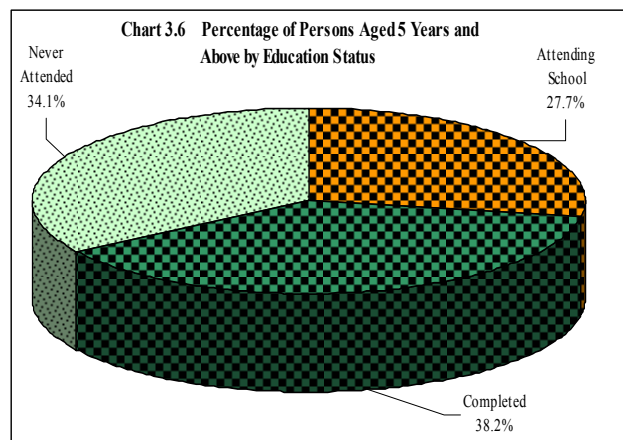
Literacy Rates for Heads of Households

The literacy rate for the heads of households in the region was 72 percent. The literacy rates among the male and female heads of households were 78 and 36 percent respectively. The literacy rate for male headed of households was higher than that of females in all districts. However, Sumbawanga Rural and Sumbawanga Urban districts had the highest literacy rate amongst heads of households which was (75%) each followed by Nkasi (71%) and Mpanda (70%) (Chart 3.5).

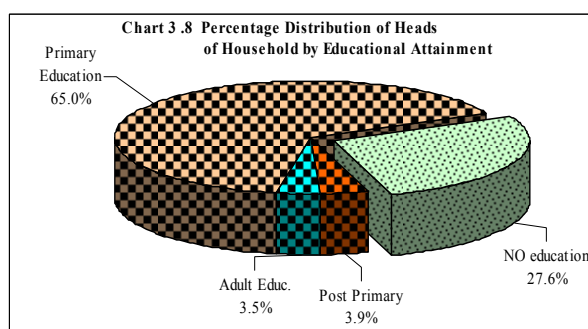


Educational Status

Information on educational status was collected from individual agricultural households. The results show that 38 percent of the population aged 5 years and above in agricultural households in the region had completed different levels of education and 28 percent were still attending school. Those who have never attended school were 34 percent (Chart 3.6).



Agricultural households in Sumbawanga Urban district had the highest percentage (40%) of population aged 5 years and above who had completed different levels of education. This was followed by Nkasi district with (39%) while Sumbawanga Rural and Mpanda had the lowest percentages of (38%) Chart 3.7)



The number of heads of agricultural households with formal education in Rukwa region was 118,763 (68.9%) and those

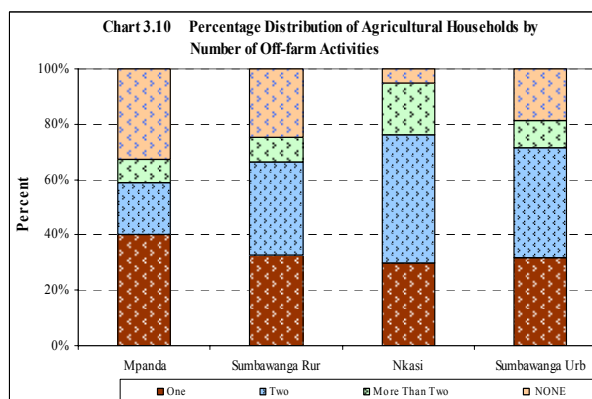
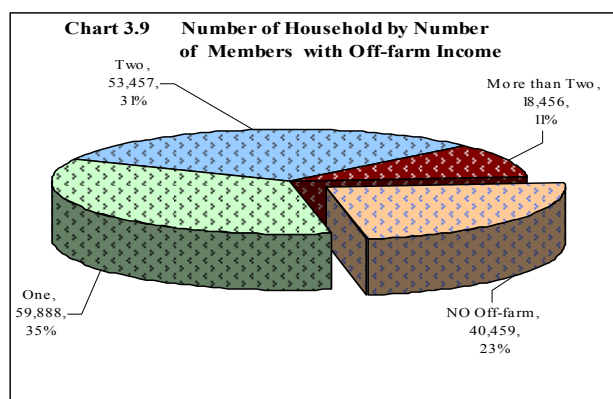
without formal education were 53,498 (31.1%) and those with only adult education who were 6,019 (3.5%). The majority of heads of agricultural households (65.0%) had primary level education whereas only (3.9%) had post primary education.

With regard to the heads of agricultural households with primary or secondary education in Rukwa region, Sumbawanga Urban district had the highest percentages (69.2% for primary and 2.8% for secondary). This was followed by Sumbawanga Rural (67.0% primary and 4.8% secondary), Nkasi (65.4% primary and 3.7% secondary) and Mpanda (61.6% primary and 3.3% secondary). (Chart 3.8)

3.1.6 Off-farm Income

Off-farm income refers to cash generated from non-agricultural activities. This can be either from permanent employment (i.e., government, private sector or other), temporary employment or labourers. It also includes cash generated from working on farms belonging to other farmers. Off-farm income is important amongst agriculture households in Rukwa with 76.5 percent of households having at least one member with off-farm income. In Rukwa region there were 59,888 households (34.8%) with only one member aged 5 and above involved in only one off-farm income generating activity, 53,457 households (31.0%) had two members involved in off-farm income generating activities and 18,456 households (10.7 %) had more than two members involved in off-farm income generating activities.

Nkasi district had the highest percentage of agriculture households with off-farm income (over 90% of total agriculture households in the district). Other districts with higher percent of agriculture households with off-farm income were



Sumbawanga Urban (81%) and Sumbawanga Rural (75%) while Mpanda district had the lowest percent of agriculture households with off-farm income (67%). The district with the highest percent of agriculture households with more than one member with off-farm income was Nkasi (65 %) followed by Sumbawanga Urban (49%), Sumbawanga Rural (43%) and Mpanda (27%)

3.2 Land Use

Land area and planted area are two different types of area measurements. Land area refers to the physical area of land and is the same regardless of the number of crops planted on the land in one year. Planted area is the total area of crops planted in a year and the area is summed if there were more than one crop on the same land per year. A number of terms are used in this section which requires defining for clarification as follows:

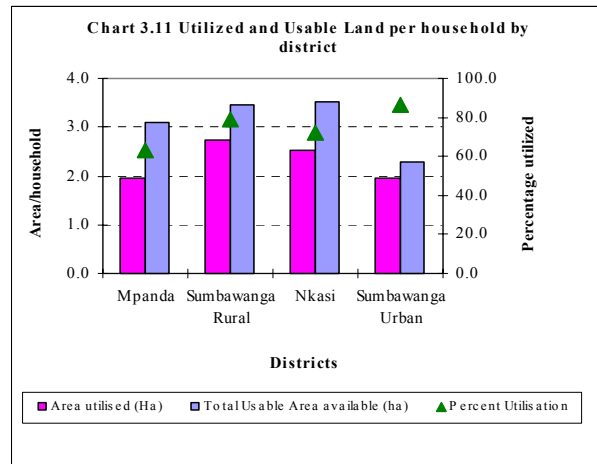
Land available refers to the area of land that has been allocated to smallholders through customary law, official title or other forms of ownership. Land available does NOT mean the total area of land that is designated as agriculture land in the

country, however it is the land that is available to smallholders given the location of villages and lack of access to more remote parcels of unused agriculture designated land.

Usable land refers to the available land minus the land that cannot be used e.g. bare rock, shallow soils, steep slopes, swamp areas etc. It does however include un-cleared bush, Utilised land refers to the land that was used during the year.

3.2.1 Area of Land Utilised

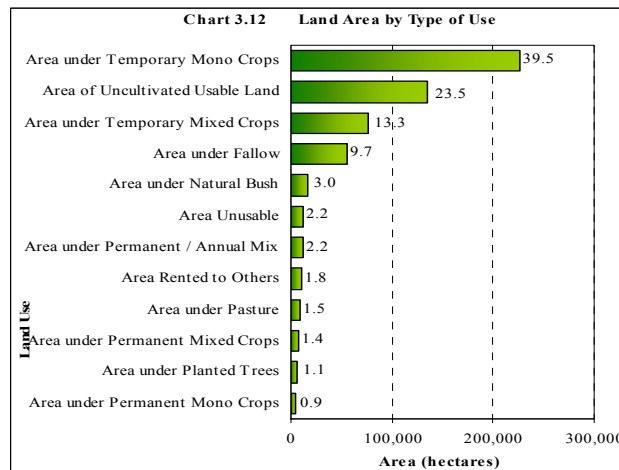
The total area of land available to smallholders was 574,291 ha. The regional average land area utilised for agriculture per household was only 2.4 ha. This figure is slightly above the national average which is estimated at 2.0 hectares. Seventy three percent of the total land available to smallholders was utilised. Only 27.1 percent of usable land available to smallholders was not used (Chart 3.11).



Small differences in land area utilised per household exist between districts with Sumbawanga Rural and Nkasi utilizing 2.7 and 2.5 ha per household respectively. The smallest land area utilised per household was found in Mpanda and Sumbawanga Urban with (2.0 ha) each. The percentage utilized of the usable land per household was highest in Sumbawanga Urban (86.2%) and lowest in Mpanda (63.2%). Seventy three percent of the total land available to smallholders was utilised. Only 27 percent of usable land available to smallholders was not used (Chart 3.11 and Map 3.7).

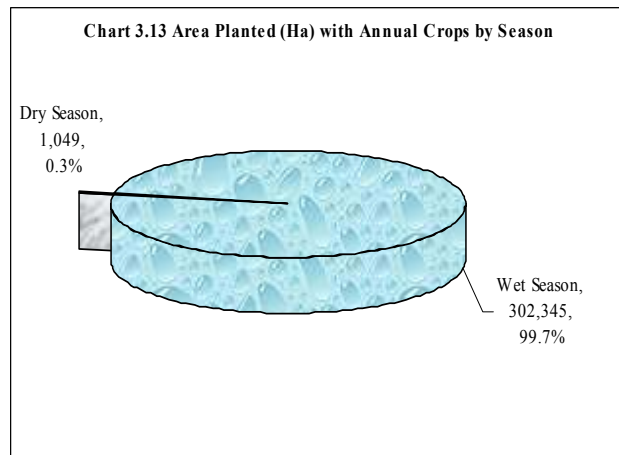
3.2.2 Types of Land Use

The area of land under temporary monocrop was 226,716 hectares (39.5% of the total land available to smallholders in Rukwa), followed by uncultivated usable land (134,711 ha, 23.5%), temporary mixed crops (76,412 ha, 13.3%), area under fallow (55,734 ha, 9.5%), under natural bush (17,243 ha, 3.0%), permanent/annual mix/area rented to others/unused area had (2,2%) each and permanent mono crop/permanent mixed crop/area under pasture/area under planted trees had (1%) each (chart 3.12)



3.3 Annual Crop and Vegetable Production

Rukwa region has one rainy seasons, namely the wet season or the long rainy season (October to March). The quantity of crops produced in the wet season will be used as a base for comparison with the past surveys and censuses.



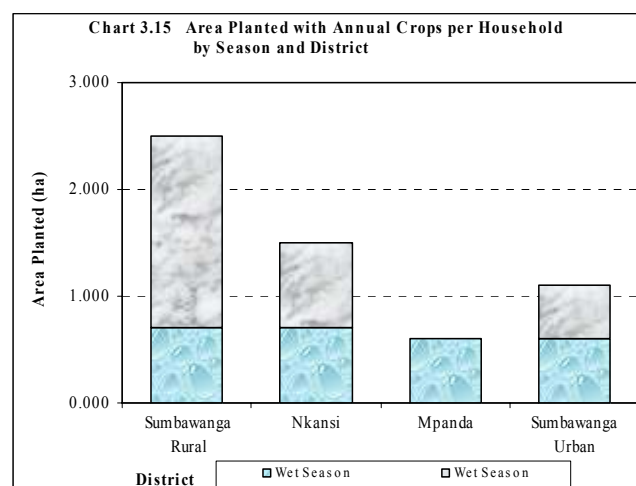
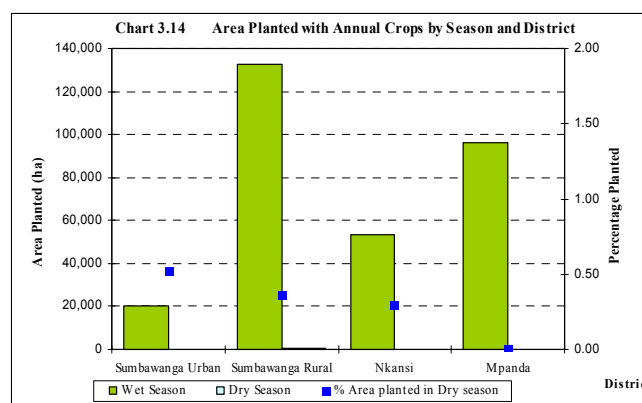
3.3.1 Area Planted

The area planted with annual crops and vegetables was 303,393 hectares out of which 1,049 hectares (0.3%) were planted during dry season and 302,345 hectares (99.7%) during wet season. The average areas planted per household during the dry and wet rainy seasons was (1.4 ha) and (1.8 ha) respectively (Chart 3.13). The districts with dry season cultivation were Sumbawanga Rural with the average planted area of 1.8 ha per household followed with Nkasi (0.8 ha) and Sumbawanga Urban (0.5 ha). The district with the largest area planted per household in wet season was Sumbawanga Rural (2.0 ha), Nkasi (1.8ha), Mpanda (1.5 ha) and Sumbawanga Urban (1.5 ha).

The district with the smallest average area planted in both dry and wet rainy seasons was Sumbawanga Urban with (56 ha and 20,109 ha). Therefore, it can be concluded that Rukwa Region had mono- agricultural season which is wet season (Chart 3.14 and Map 3.8).

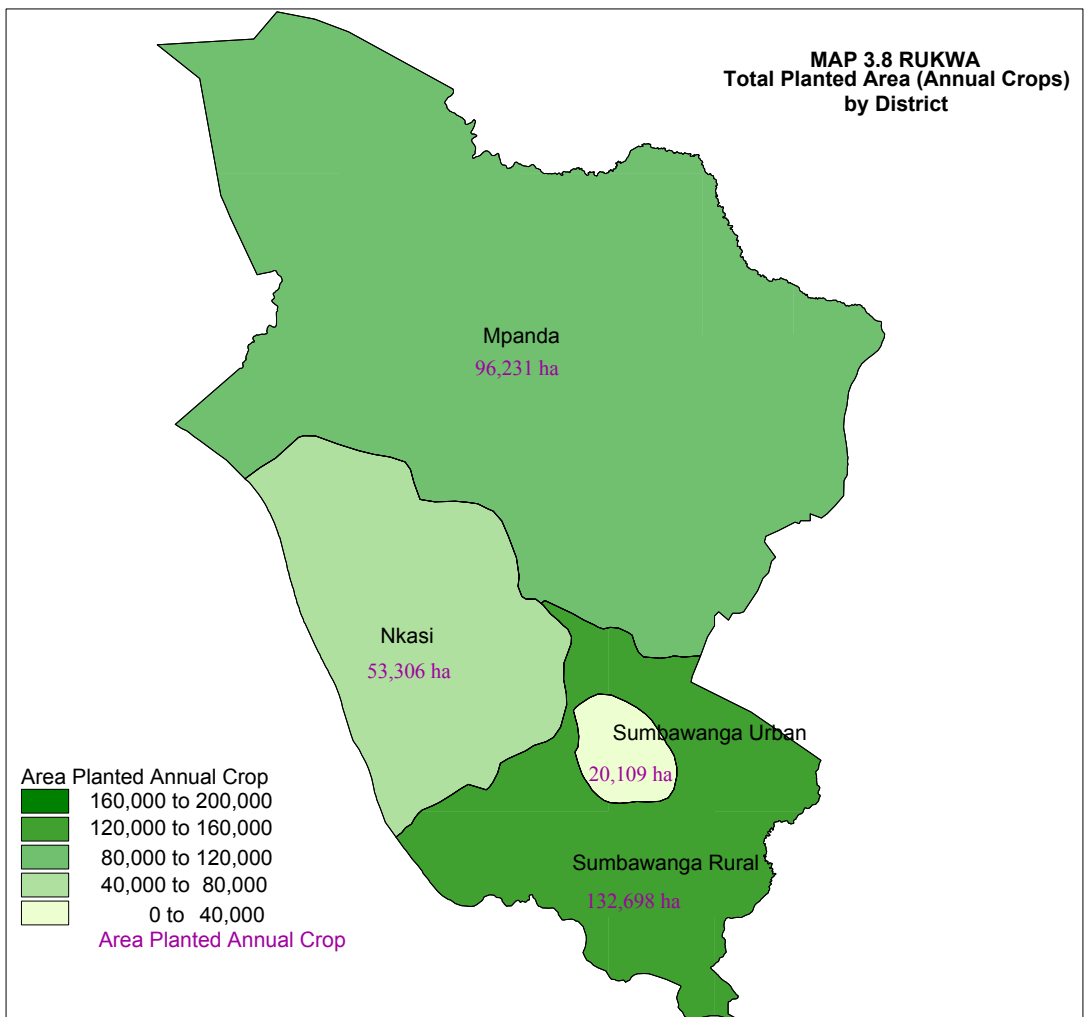
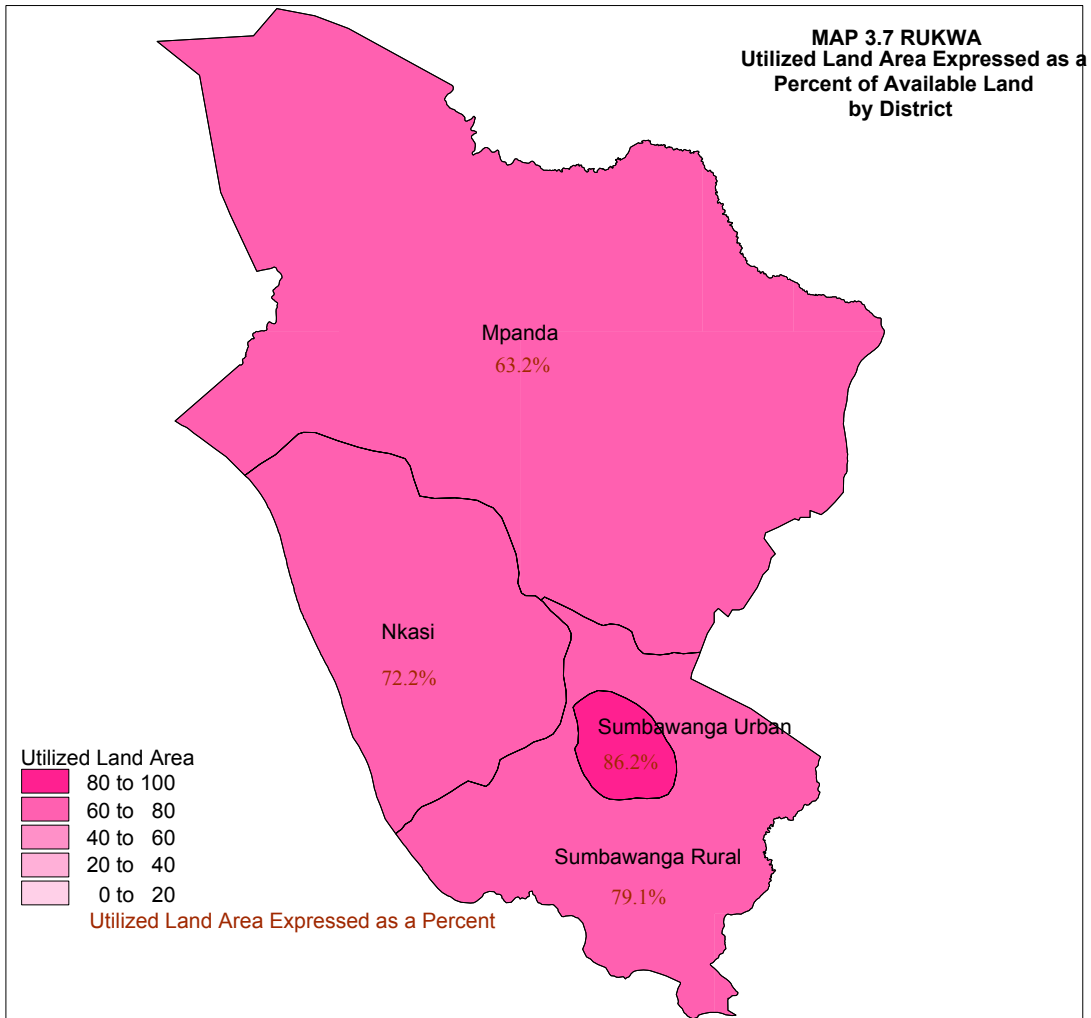
The planted area occupied by cereals during the wet season was 203,500 ha (67.3% of the total area planted with annuals). This was followed by pulses (37,551 hectares, 12.4%), roots and tubers (28,595 hectares, 9.5%), oil seeds (28,178 hectares, 9.3%) cash crops (3,295 hectares (1.1%) and fruits and vegetables (1,225 hectares (0.4%).

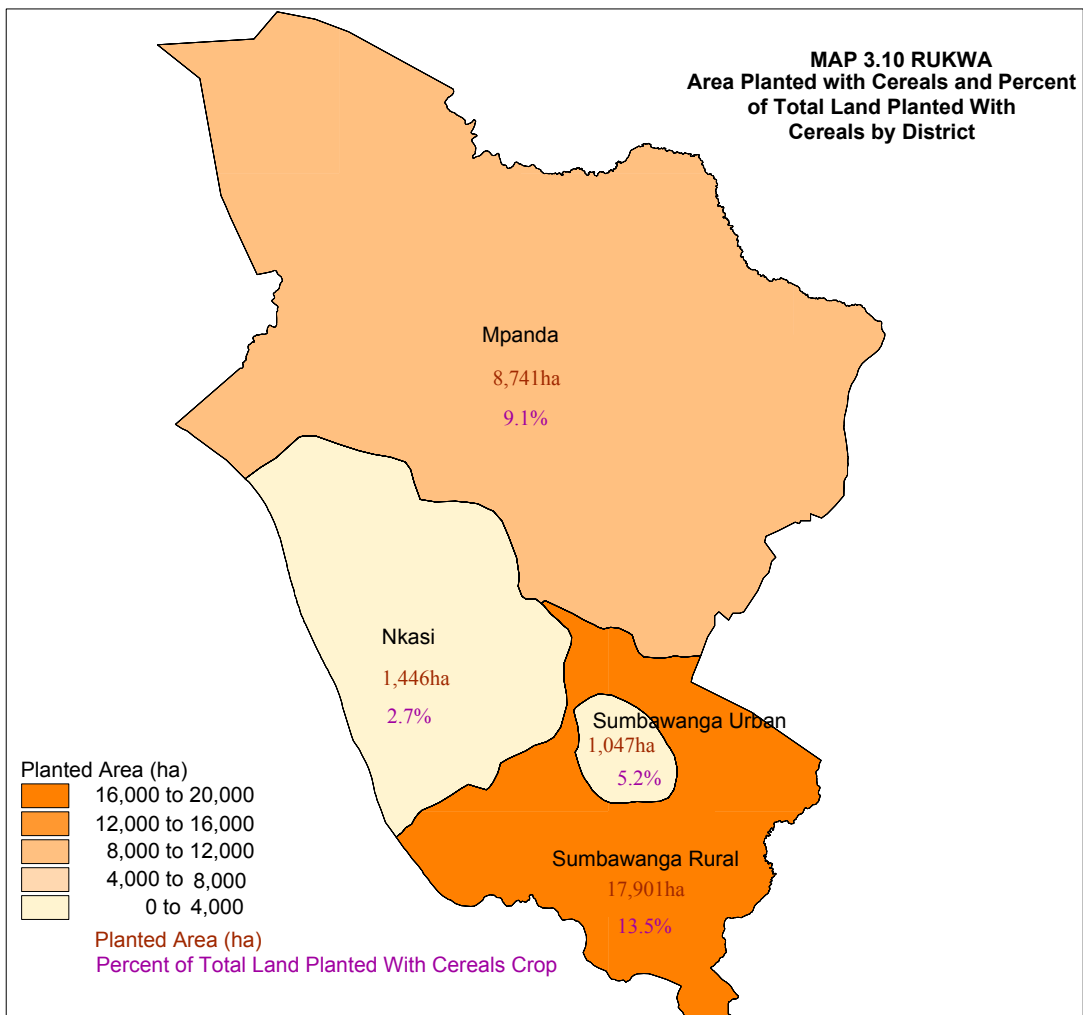
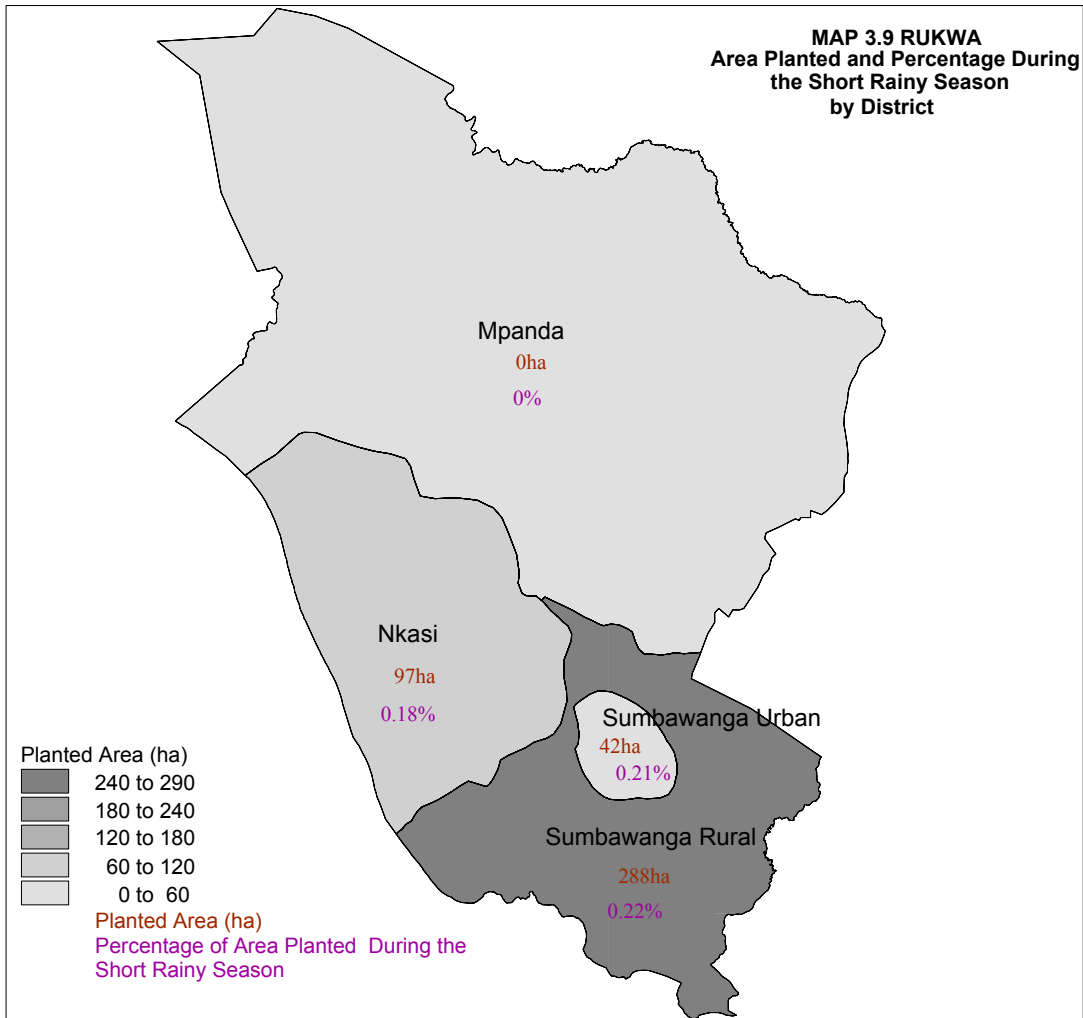
The average area planted per household during the wet season in Rukwa region was 1.8 hectares, however, there were large district differences. Sumbawanga Rural had the largest planted area per household (2.0 ha) followed by Nkasi (1.8 ha), Mpanda (1.6 ha) and Sumbawanga Urban (1.5 ha) each. (Chart 3.15 and Map 3.9).



Analysis of the Most Important Crops

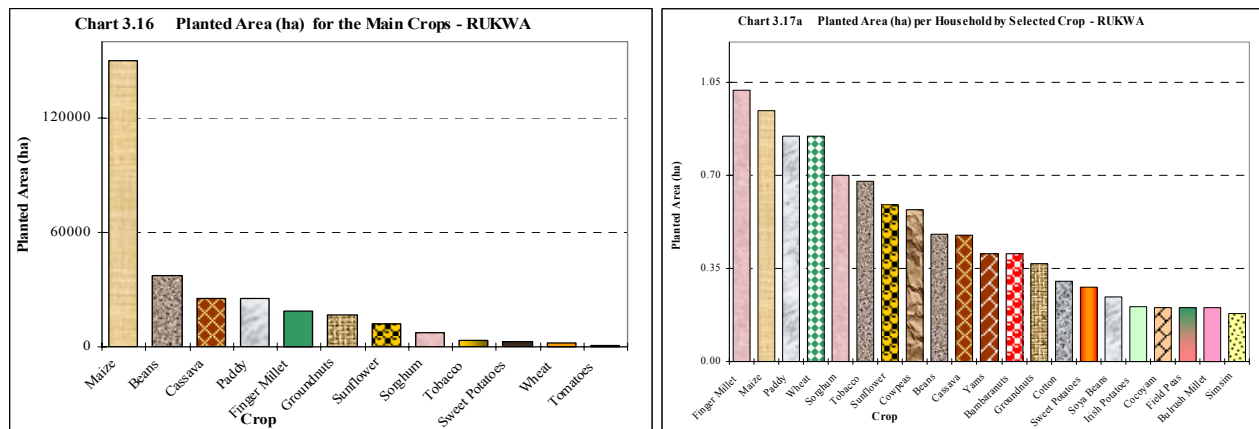
Results on crop production are presented in two different sections. The first section compares the importance of each crop regardless of whether they are annual or permanent. The second section contains a more detailed analysis on production based on crop types.





3.3.2 Crop Importance

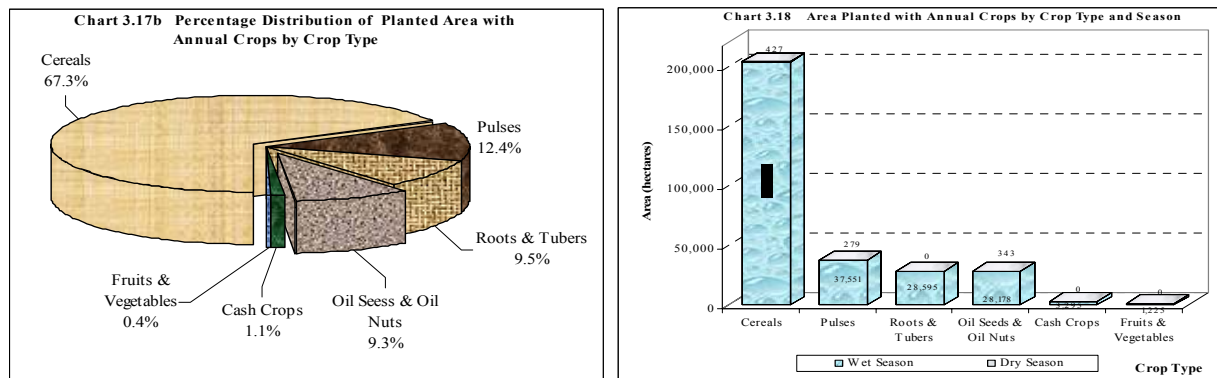
Maize is the dominant annual crop grown in Rukwa region and it had a planted area 4.6 times greater than beans, which had the second largest planted area. The area planted with maize constitutes 94.8 percent of the total area planted with annual crops in the region. Other crops in order of their importance (based on area planted) are beans, cassava, paddy,



finger millet, groundnuts, sunflower, sorghum, tobacco, sweet potatoes, wheat and tomatoes. (Chart 3.16) Households that grow finger millet, maize, paddy wheat and sorghum had larger planted areas per household than those growing other crops (Chart 3.17a).

3.3.3 Crop Types

Cereals are the main crops grown in Rukwa region. The area planted with cereals during the wet season was 203,500 hectares (67.3% of the total planted area), followed by pulses with (37,551 ha, 12.4%), root and tubers 28,595 hectares



(9.5%), oil seeds 28,178 hectares (9.3%), cash crops 3 295 hectares (1.1%) and fruits and vegetables 1,225 hectares (0.4%) (Chart 3.17b).

Cereals and pulses are the dominant crops in both seasons and other crop types are of minor importance in comparison. There is little difference in the proportions of the different crop types grown between seasons and because dry season production was very small compared to wet season it is inappropriate to make detailed comparisons between the two seasons (Chart 3.18).

3.3.4 Cereal Crop Production

The total production of cereals was 240,623 tonnes.

Maize was the dominant cereal crop with the production of 163,432 tonnes which was 67.9 percent of total cereal crops produced, followed by paddy (20.6%), finger millet (6.6%) sorghum (4.1%), wheat (0.8%) and bulrush millet (0.01). (Map 3.10).

The area planted with maize was dominant and it represented 73.6 percent of the total area planted with cereal crops, followed by paddy (12.5%), finger millet (9.3%), Sorghum (3.6%), wheat 1.0%, and bulrush millet (0.01%).

Table 3.2: Area, Production and Yield of Cereal Crops by Season

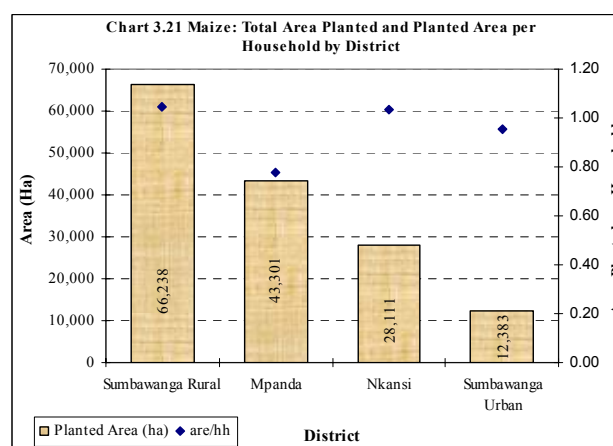
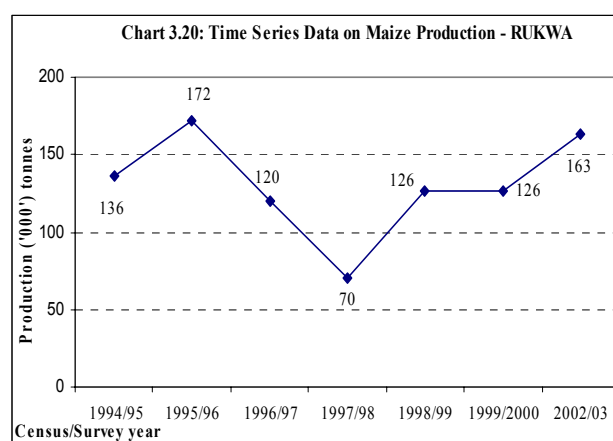
Crop	Wet Season		
	Area Planted (ha)	Quantity harvested (tonnes)	Yield (kg/ha)
Maize	150,033	163,432	1,089
Paddy	25,526	49,520	1,940
Finger Millet	18,967	15,798	833
Sorghum	7,405	9,942	1,343
Wheat	1,979	1,911	966
Bulrush Millet	17	20	1,176
Total	203,928	240,623	

Paddy had the highest yield of (1940kg/ha), followed by sorghum (1,343 kg/ha), bulrush millet (1,186 kg/ha), maize (1,089 kg/ha), wheat (966 kg/ha) and finer millet (833 kg/ha) (Chart 3.19).

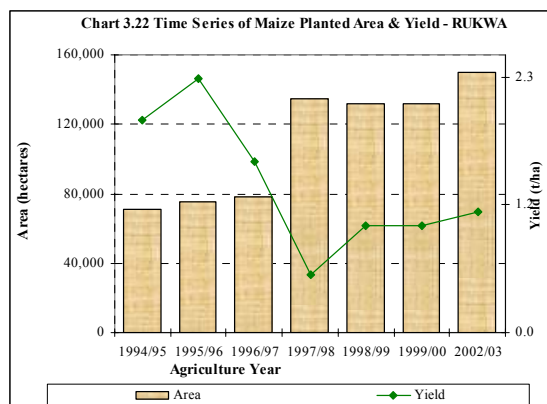
3.3.4.1 Maize

Maize dominated the production of cereal crops in the region. The number of households growing maize in Rukwa region during the wet season was 159,160 (72.0% of the total crop growing households in the region during the wet season). The total production of maize during wet season was 163,277 tonnes from a planted area of 149,606 hectares resulting in a yield of (1.09 t/ha).

(Chart 3.20) indicates the maize production trend (in thousand metric tonnes) for the wet season. There was a sharp decrease in maize production over the period of 1996 to 1998 after which the production increased sharply by the year 1998. In the year 1999 to 2000 the production was almost stable after which the production increased steadily up to the year 2003. The average area planted with maize per household was 0.94 hectares; however it ranged from 0.78 hectares in Mpanda district to 1.04 hectares in both Sumbawanga rural and Nkasi. (Map 3.21). Sumbawanga Rural district had the largest area for maize (66,238 ha) followed by Mpanda (43,301 ha), Nkasi (28,111 ha). Sumbawanga Urban district had the smallest planted area (12,382 ha) (Chart 3.21 and Map 3.11).

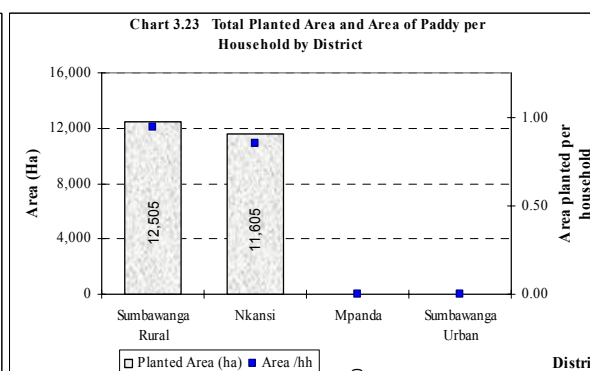
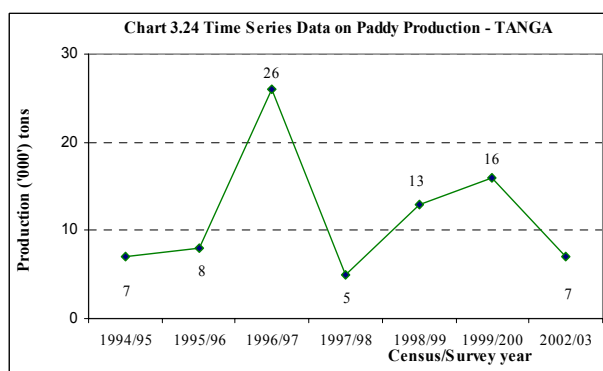


Charts (3.20 and 3.22) show that, both production and yield of maize dropped sharply from 1995/96 to 1997/98 after which both increased gradually up to 2002/03. On the other hand the planted area was almost stable from 1994/95 to 1996/97 and after increasing rapidly in the year 1997/98 but the exceeding years from 1998 to 2003 the yield remained almost constant the quantity produced has increased and this has been due to a large increase in the area under production. The area planted with maize remained constant over the period from 1994 to 1996 after which the area under production expanded gradually until 2000 and the area has remained constant ever since. (Chart 3.22)



3.3.4.2 Paddy

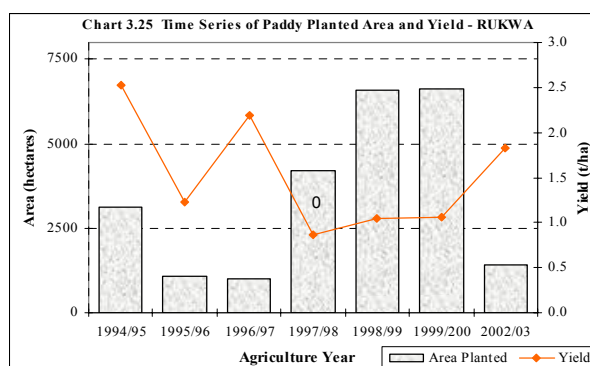
Paddy is the second most important cereal crop in the region in terms of planted area. The number of households that grew



paddy in Rukwa region during the wet season was 30,132.

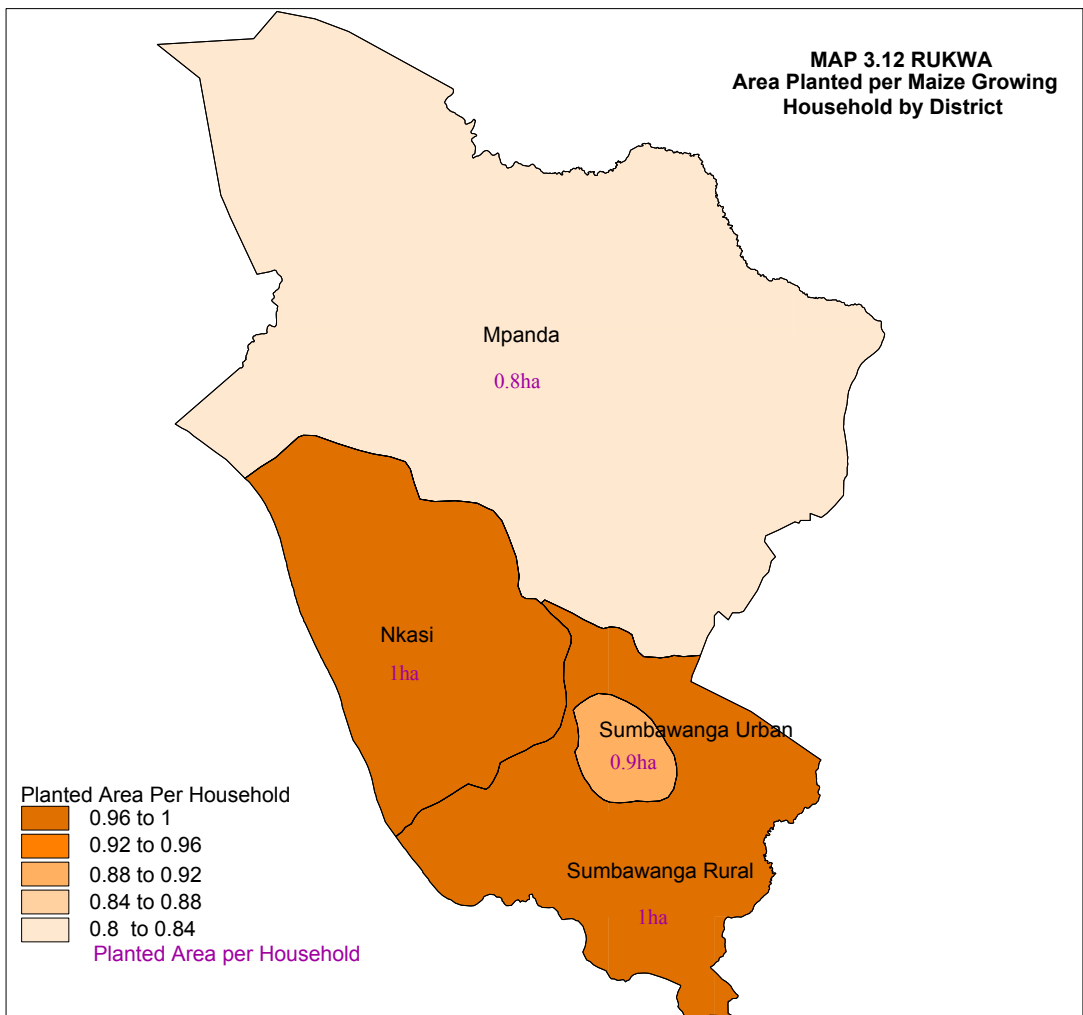
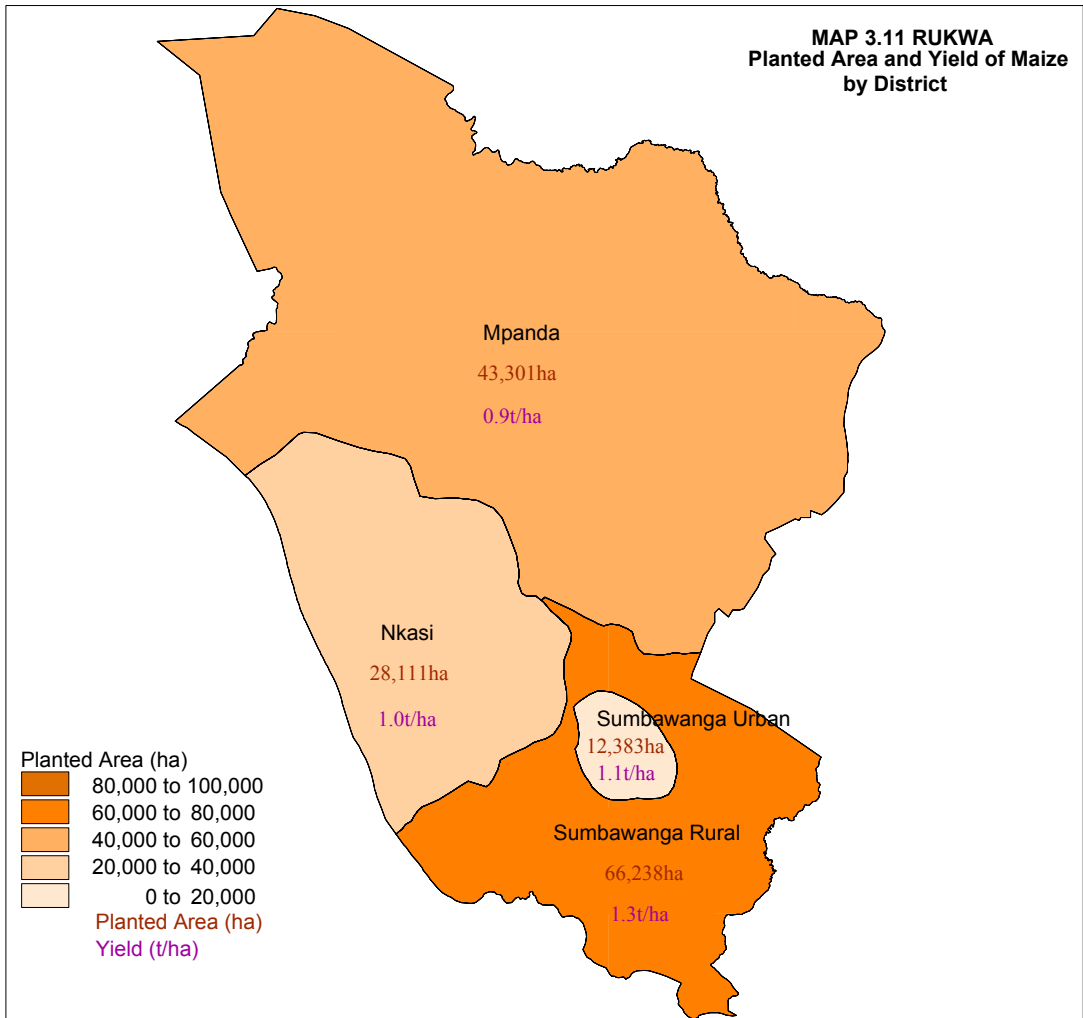
This represented 17.6 percent of the total annual crop growing households in Rukwa region in the wet season.

The total production of paddy was 49,520 tonnes from a planted area of 25,526 hectares resulting in a yield of (1.9 t/ha). The district with the largest area planted with Paddy was Sumbawanga Rural (12,505 ha) followed by Nkasi (11,605 ha). Mpanda and Sumbawanga Urban did not grow any paddy. (Map 3.13) There was a small insignificant variation in the average planted area per crop



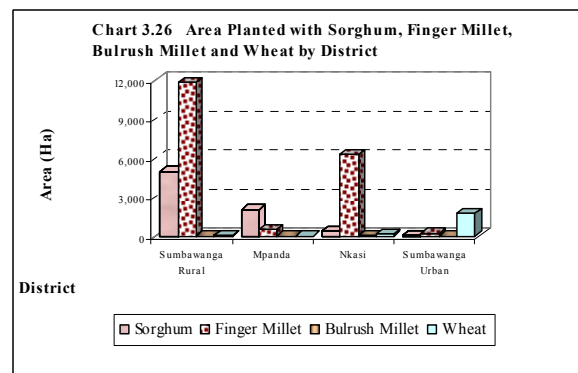
growing household between the two districts of Nkasi and Sumbawanga Rural ranging from 0.85 hectares to 0.95 hectares respectively (Chart 3.23 and Map 3.14)

There was a sharp decrease in the production of paddy from 1994/95 to 1995/96. From 1997/98 and 1998/99 the production increased. The production dropped from 7,941 tons in 1995/96 to 3642 tonnes in 1997/98 after which it rose to over 6,000 tonnes in the following two years of 1998/99 and 1999/2000. Thereafter the yield had been almost stable fluctuating between (2500 kg/ha) and 900kg/ha) Charts 3.23 and 3.25



3.3.4.3 Other Cereals

Other cereals produced in Rukwa Region included: sorghum (7,405 ha), finger millet (18,967 ha), bulrush millet (17 ha) and wheat (1,979 ha). While bulrush millet was grown in Nkasi district only, wheat was produced in all districts except Mpanda. (Chart 3.26).



3.3.5 Roots and Tuber Crops Production

The total production of roots and tubers was 45,702 tonnes. Cassava production was higher than any other root and tuber crop in the region with a total production of 39,818 tonnes representing 87 percent of the total root and tuber crops production. This was followed by sweet potatoes (4,699 tonnes, 10%), Irish potatoes with 1,031 tonnes (2%), yams (127t, 0.3%) and coco yams (27t, 0.06%) (Table 3.3) The area planted with cassava was therefore larger than any other root and tuber crops and it was the most important root and tuber crop in Rukwa in terms of planted area. It accounted for 89.6 percent of the area planted with roots and tubers, followed by sweet potatoes (9.4%), Irish potatoes 1.0%), cocoyam (0.05%). and cocoyam (0.02%)

There was a significant increase in the area planted with cassava and Irish potatoes from 1994/95 to 2002/03. The area for sweet potatoes and yams remained more or less constant.

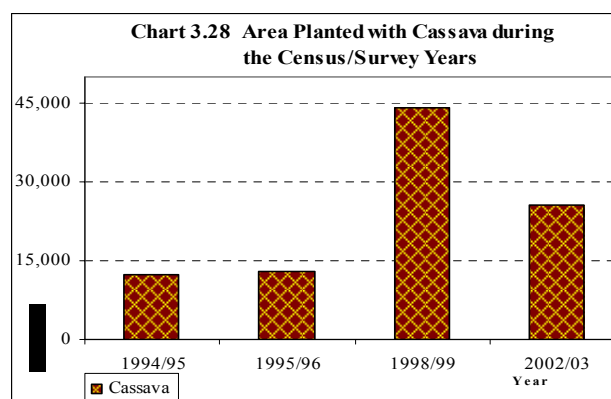
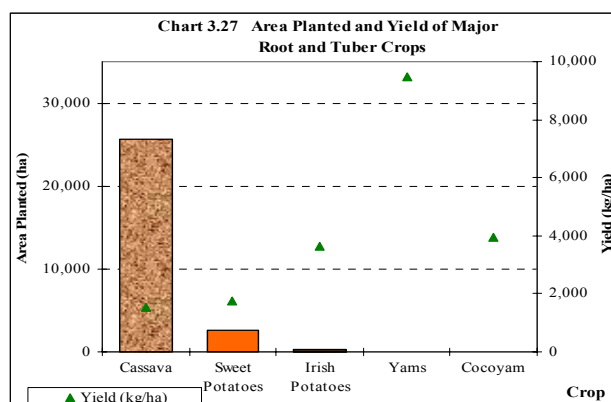
The estimated yield was high for yams (9.7 t/ha) and cocoyam (3.9t/ha). Irish potatoes (3.7t/ha), sweet potatoes (1.8 t/ha) and cassava (1.6 t/ha)

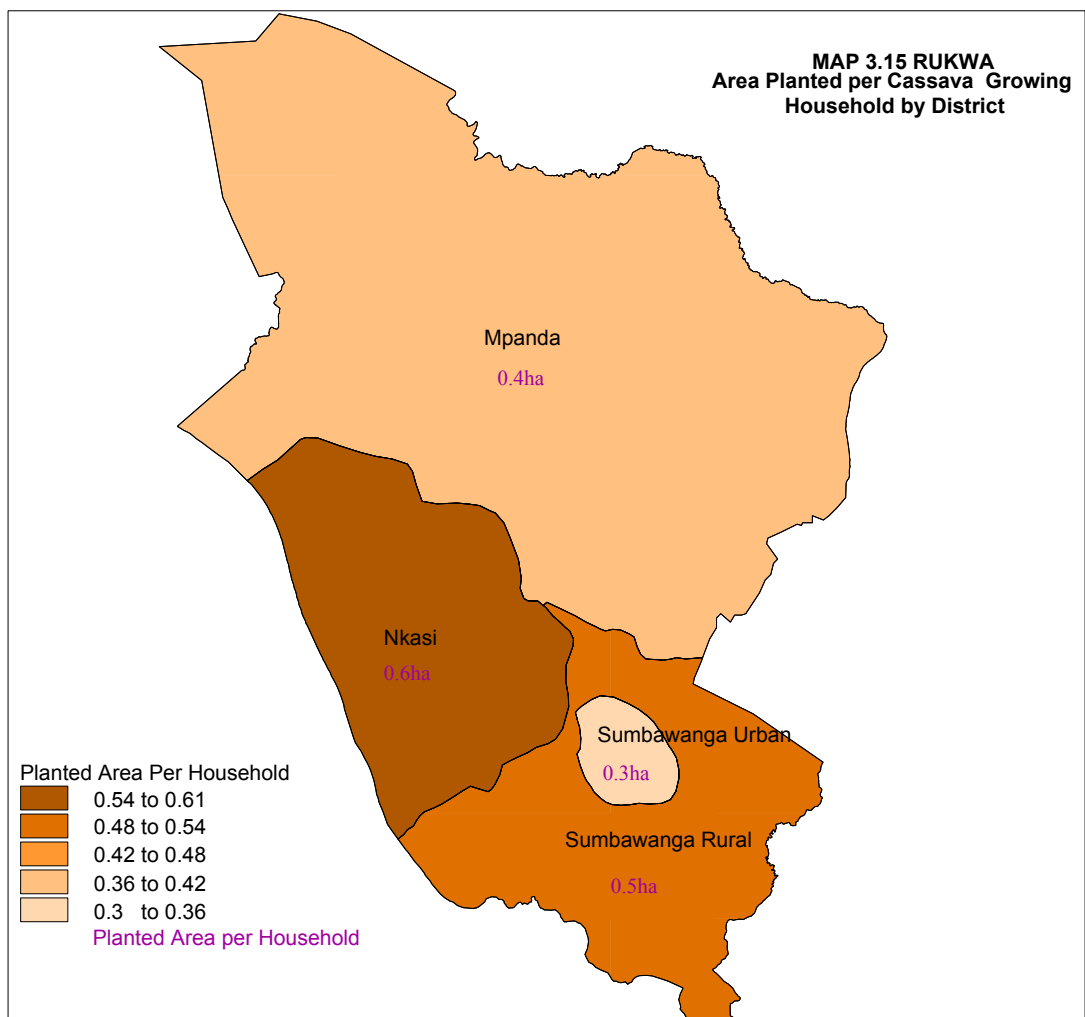
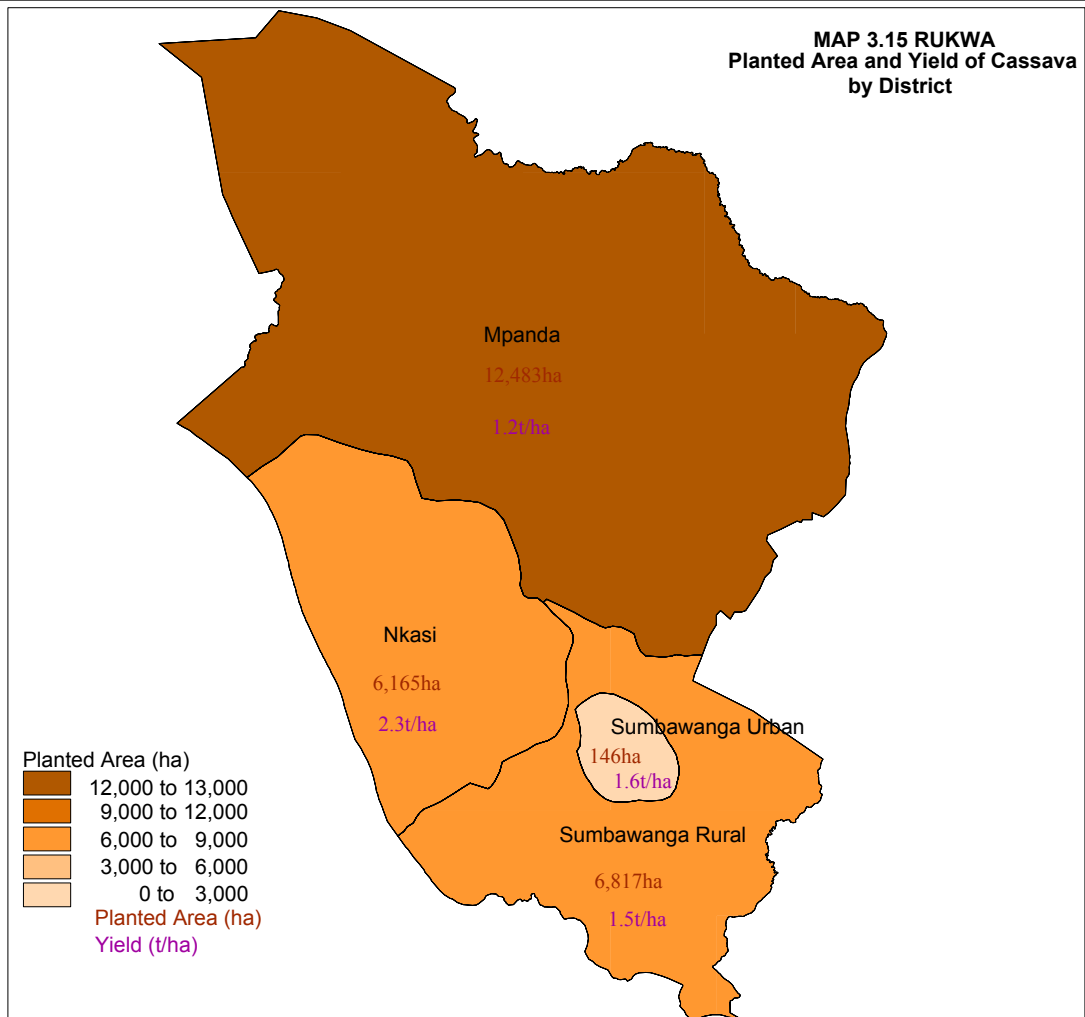
3.3.5.1 Cassava

The number of households growing cassava in the region was 53,929. This represents 31.4 percent of the total crop growing households in the region. The total production of cassava during the census year was 39,818 tonnes from a planted area of 25,611 hectares resulting in a yield of (1.6t/ha).

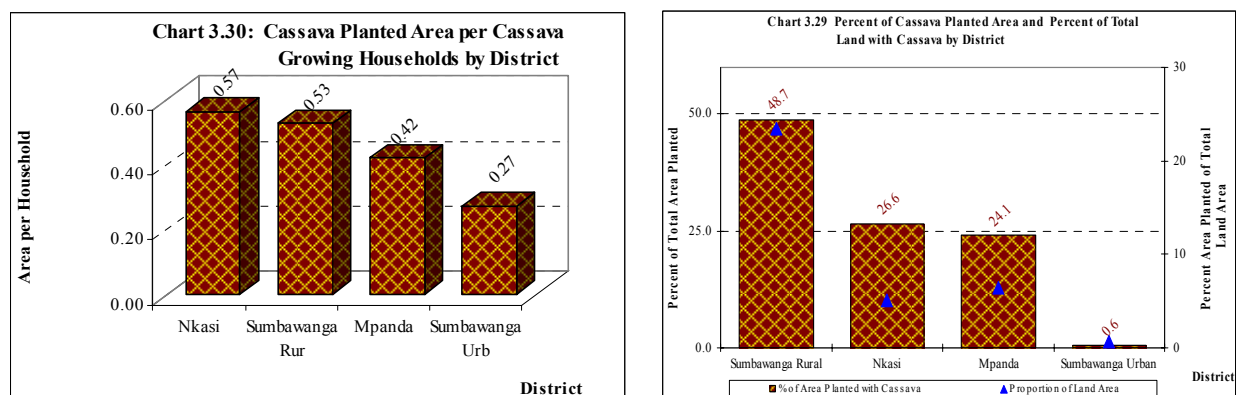
Table 3.3: Area, Production and Yield of Roots & Tuber Crops by Season

Crop	Wet Season		
	Area Planted (ha)	Quantity harvested (tonnes)	Yield (kg/ha)
Cassava	25,611	39,818	1,555
Sweet Potatoes	2,681	4,699	1,753
Irish Potatoes	282	1,031	3,656
Yams	13	127	9,669
Cocoyam	7	27	3,857
Total	28,594	45,702	





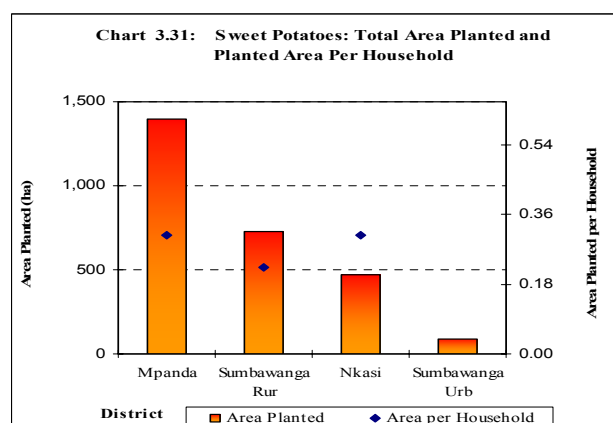
Previous censuses and surveys indicate that the area planted with cassava increased from 1995/96 to 2002/03 (3.28). The planted area with cassava accounted for 8.5 percent of the total planted with annual crops. Sumbawanga Rural district had the largest planted area of cassava (12,483 ha, 48.7% of the total cassava planted area in the region) followed by Nkasi (6,817 ha, 26.6%), Mpanda (6,165 ha, 24.1%) and Sumbawanga Urban (146 ha, 0.6%). (Map 3.15). However, the district with the highest proportion of land planted with cassava was Sumbawanga Rural district (23.4%) followed by Mpanda (6.4%), Nkasi (5.1%) and Sumbawanga Urban (0.7%) (Chart 3.29).



The average cassava planted area per cassava growing household was 0.47 hectares. There were small district variations. The area planted per cassava growing household was greatest in Nkasi (0.57 ha), this was followed by Sumbawanga Rural (0.53 ha), Mpanda (0.42 ha) and Sumbawanga Urban (0.27ha) (Chart 3.30 and Map 3.16).

3.3.5.2 Sweet Potatoes

The number of households growing sweet potatoes in Rukwa region was 9,530. This was 14.7 percent of the total root and tuber crop growing households during the wet season. The total production of sweet potatoes during the census year was 4,699 tonnes from a planted area of 2,681 hectares resulting in a yield of (1.75t/ha).



Mpanda District has the largest planted area for sweet potatoes (1,400 ha, 52.2%), followed by Sumbawanga Rural (728 ha, 27.1%), Nkasi (469 ha, 17.5%) and Sumbawanga Urban (85 ha, 3.2%).

3.3.6 Pulse Crops Production

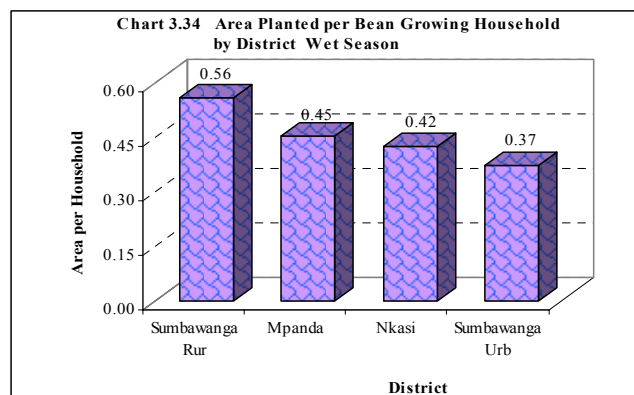
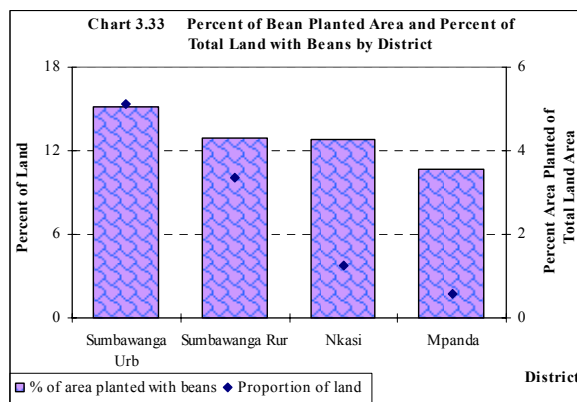
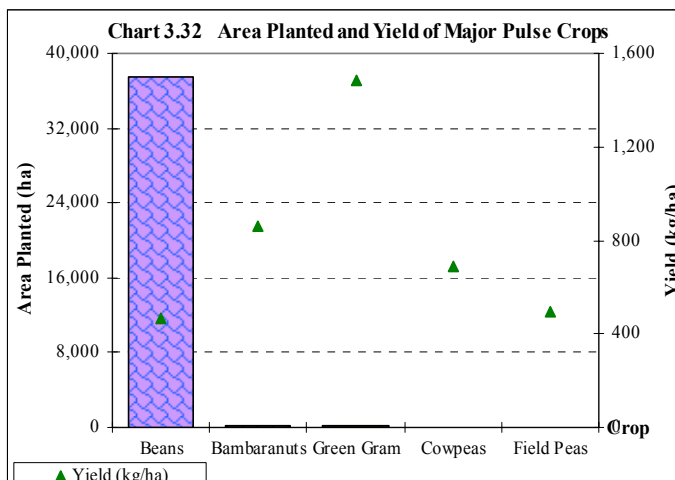
The total area planted with pulses was 37,831 hectares out of which 37,530 ha

Table 3.4: Area, Production and Yield of Pulses by Season

Crop	Wet Season			Total		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Beans	37,251	17,265	463	37,530	17,308	461
Bambaranuts	108	93	861	108	93	861
Green Gram	102	151	1,480	102	151	1,480
Cowpeas	68	47	691	68	47	691
Field Peas	23	11	478	23	11	478
Total	37,552	17,567		37,831	17,610	

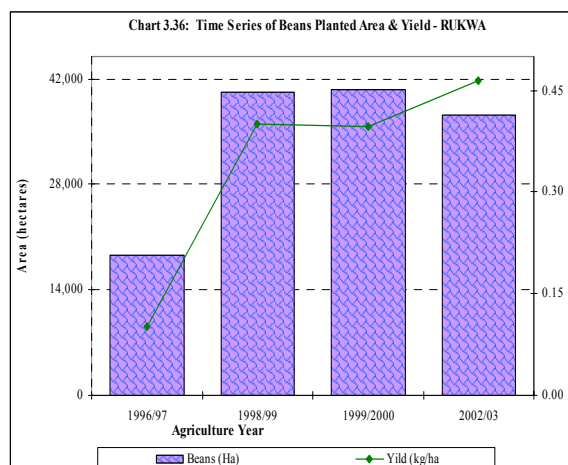
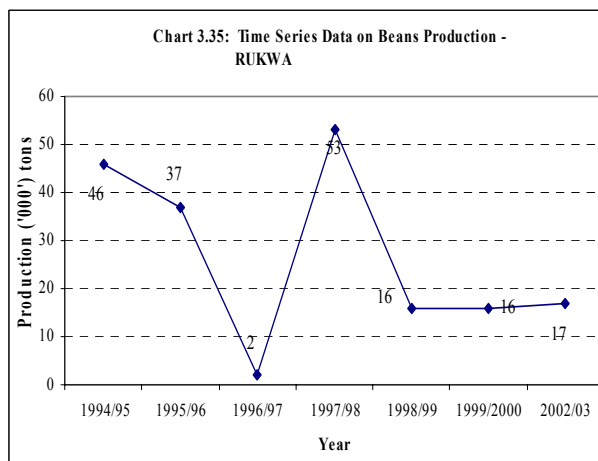
were planted with beans (99.2 percent of the total area planted with pulses), followed by bambaranuts (108 ha, 0.29%), green grams (102 ha, 0.27%), cowpeas (68 ha, 0.18%) and field peas (23 ha, 0.06). Mung beans, pigeon peas and chick peas were not grown in the region.

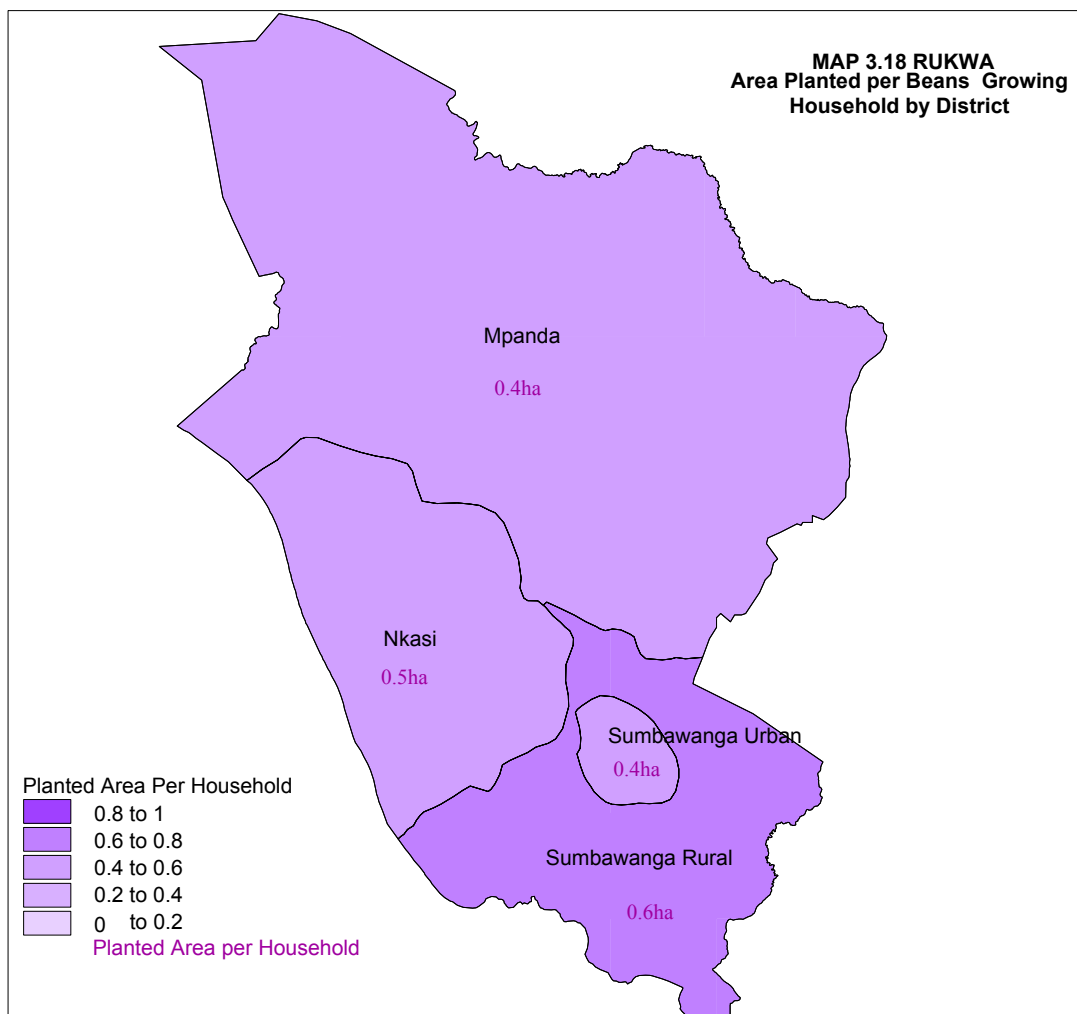
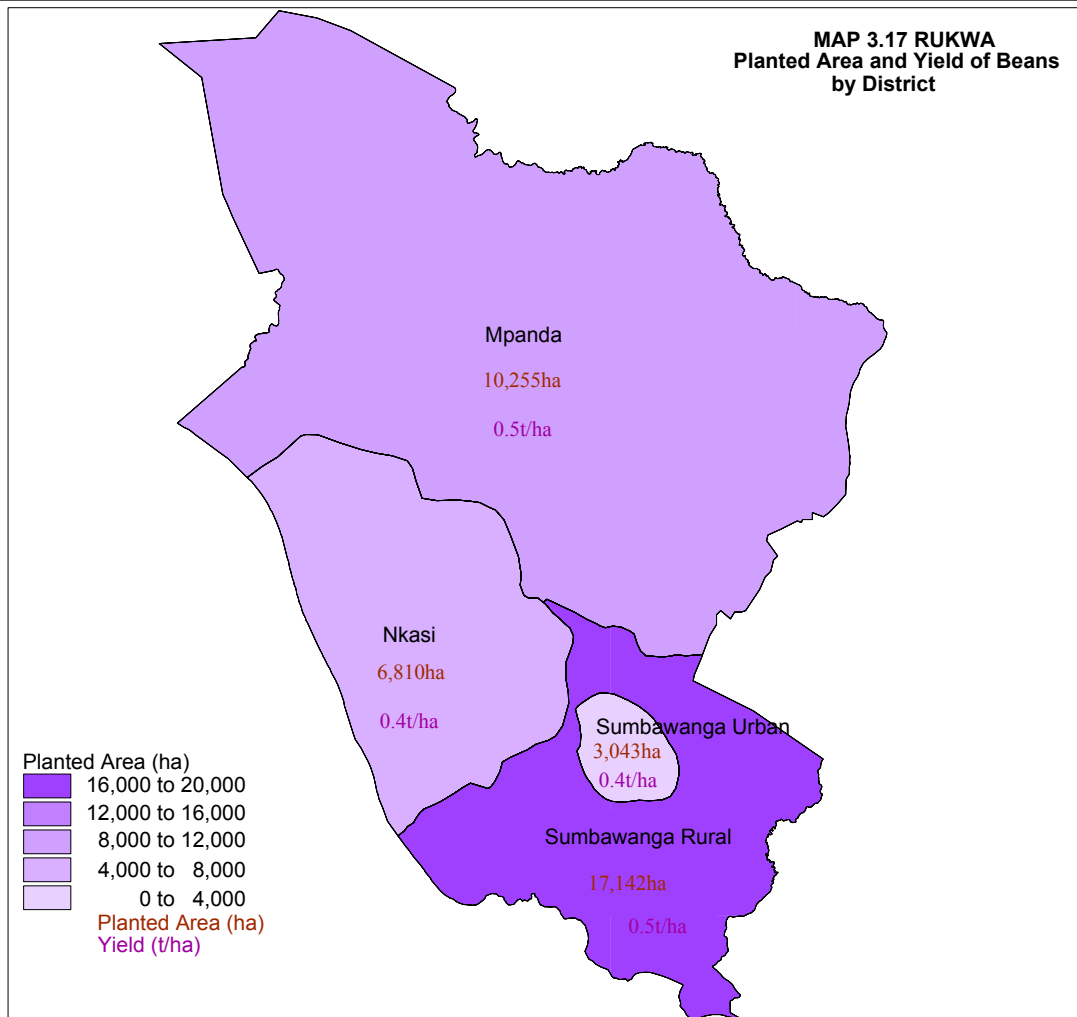
The total production of pulses was 17,610 tonnes. Beans were the most cultivated crop producing 17,308 tonnes which accounted for 98.3 percent of the total pulse production. This was followed by green grams (151t, 0.86%), bambaranuts (93t, 0.53%), cowpeas (47t, 0.27%) and field peas (11t, 0.06%). Green grams and bambaranuts had relatively higher yields of 1,480 and 861 kgs/ha) respectively. The yields of the rest of the pulses in kilograms per hectare were cowpeas (691 kgs/ha), field peas (478 kgs/ha) and beans (461 kgs/ha) (Chart 3.32).



3.3.6.1 Beans

Beans dominated the production of pulse crops in the region. The number of households growing beans in Rukwa region during the wet season was 78,216. The total production of beans in the region was 17,265 tonnes from a planted area of 37,251 hectares resulting in a yield of (0.46 t/ha). The largest area planted with beans in the region was in Sumbawanga Rural district (17,142 ha, 46.0%) (Chart 3.33 and Map 3.17), however, the largest area planted with beans per beans growing household was in Sumbawanga Rural district (0.56 ha) (Chart 3.34). The average area planted per household in the region during the wet season was (0.48 ha). The variations in area planted with beans per household among districts in the region was not significant important as it ranged from (0.37 ha) in Sumbawanga Urban to (0.45 ha) in Mpanda. (Map 3.18).





In Rukwa region, bean production was fluctuating from the year 1995/96 to 1998/99 after which the production increased steadily over the period 1998/99 to 2003 from 16,000 tonnes in 1998/99 to 17,000 tonnes in 2002/2003 (Chart 3.35).

Charts 3.35 and 3.36 shows that whilst the yield of beans remained fairly constant in the last 3 years, the quantity produced had remained stable ranging between 40,000 in the year 1998 to 37,000 tonnes tin 2003 (Chart 3.36).

3.3.7 Oil Seed Production

The total production of oilseed crops was 17,419 tonnes planted on an area of 28,520 hectares.

Groundnuts were most important oilseed crop with 16,570 hectares (58.1% of the total area planted with oil seeds), followed by sunflower (11,758 ha, 41.2%), soya beans (127 ha, 0.45%) and simsim (65 ha, 0.23%).

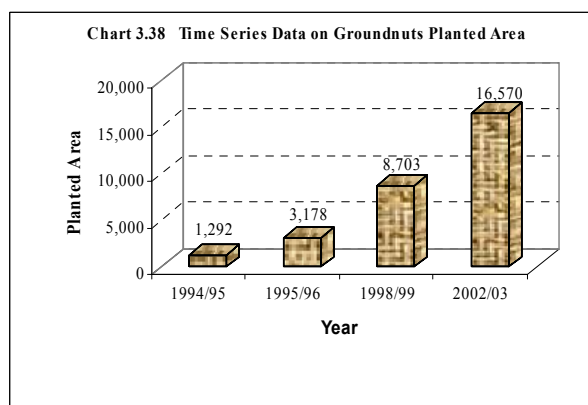
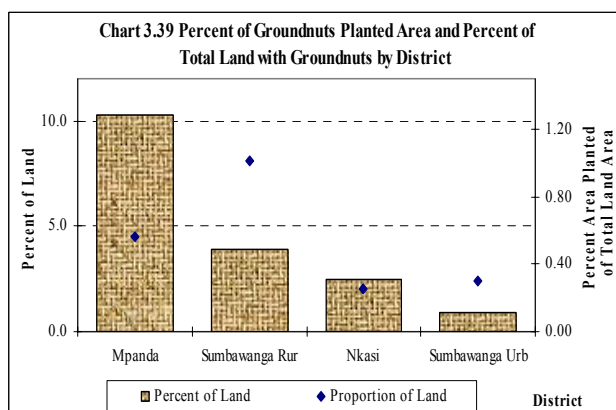
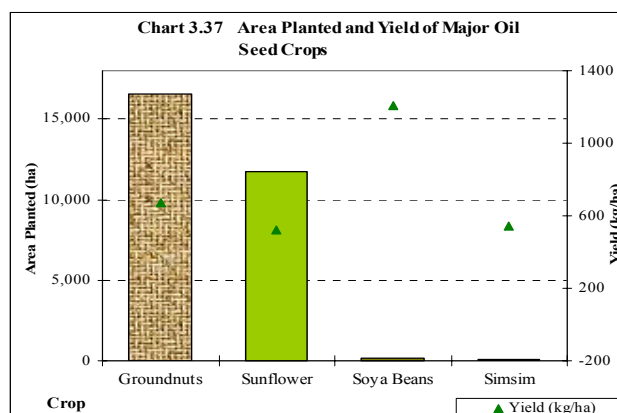
The production of groundnuts was 11,126 tonnes which accounted for 63.9 percent of the total production of oil seeds, followed by sunflower (35.0%), soya beans (0.88%) and simsim (0.20%).

3.3.7.1 Groundnuts

During the wet season the number of households growing

Table 3.5: Area, Quantity Harvested and Yield of Oil Crops by Season

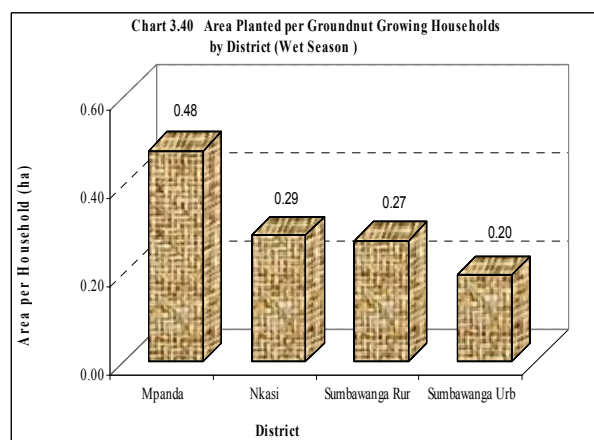
Crop	Wet Season		Total		Yield (kg/ha)
	Area Planted (ha)	Quantity Harvested (tons)	Area Planted (ha)	Quantity Harvested (tons)	
Groundnuts	16,522	11,126	16,570	11,126	671
Sunflower	11,758	6,103	11,758	6,103	519
Soya Beans	127	154	127	154	1208
Simsim	65	35	65	35	540
Total	28,520	17,419	28,520	17,419	



groundnuts in that season was 44,997. The total production of groundnuts in the region was 11,055 tonnes from a planted area of 16,522 hectares resulting in a yield of (0.67 t/ha). Area planted had been increased from 1,292 hectares in 1994/95 to 16,570 hectares in 2002/03 (Chart 3.38)

Sixty percent of the area planted with groundnuts was located in Mpanda district (9,874 ha) followed by Sumbawanga Rural (5,136 ha, 31%), Nkasi (1,333 ha, 8%) and Sumbawanga Urban (180 ha, 1%). (Map 3.19) The district with the highest proportion of land with groundnuts was Sumbawanga Rural, followed by Mpanda, Sumbawanga Urban and Nkasi. (Chart 3.39 and Map 3.20)

The largest area planted per groundnut growing household was found in Mpanda district (0.48 ha) and the lowest was in Sumbawanga Urban (0.20 ha). The range between the district with the highest and the lowest area planted per household depicts small variations in area planted among the districts (Chart 3.40).



3.3.8 Fruit and Vegetables

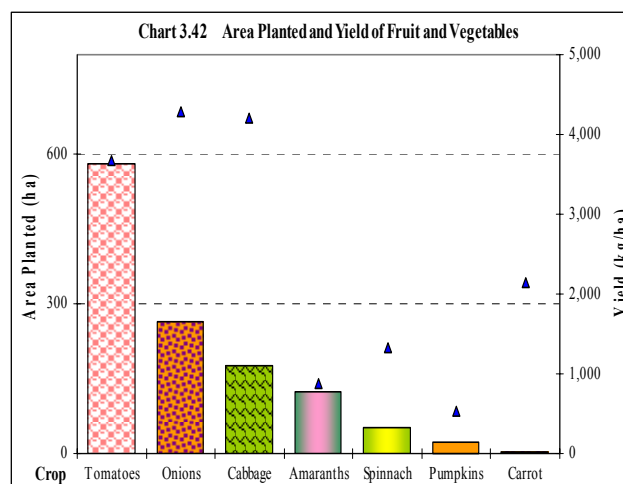
The collection of fruit and vegetables production data was difficult due to the small quantities produced per household. Most of the data presented here gives the production of smallholders who grew these crops as cash crops and not merely for household consumption.

The total production of fruits and vegetables was 4,211 tonnes. The most cultivated fruit and vegetable crop was tomatoes with a production of 2,136 tonnes (48% of the total fruit and vegetables produced) followed by onions (1,139t, 22%), Cabbage (739t, 14%) and Amaranths (110t, 10%). The production of the other fruit and vegetables crops was relatively small (Table 3.6).

The yield of tomatoes was 3,665 kg/ha, onions (4,279 kg/ha), cabbage (4,212 kg/ha), Amaranths (879 kg/ha), spinach (1,336 kg/ha), pumpkins (540 kg/ha) and carrot (2kg/ha) (Chart 3.42).

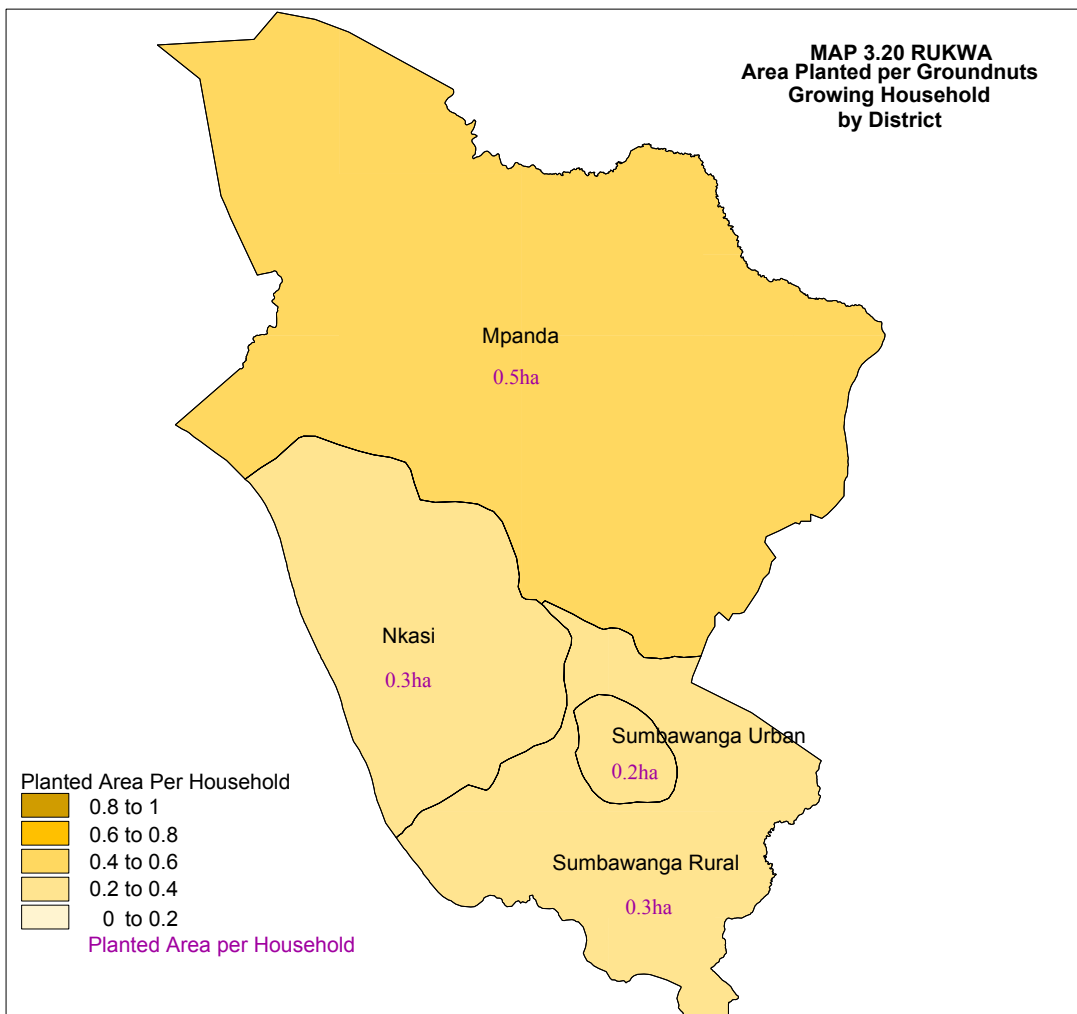
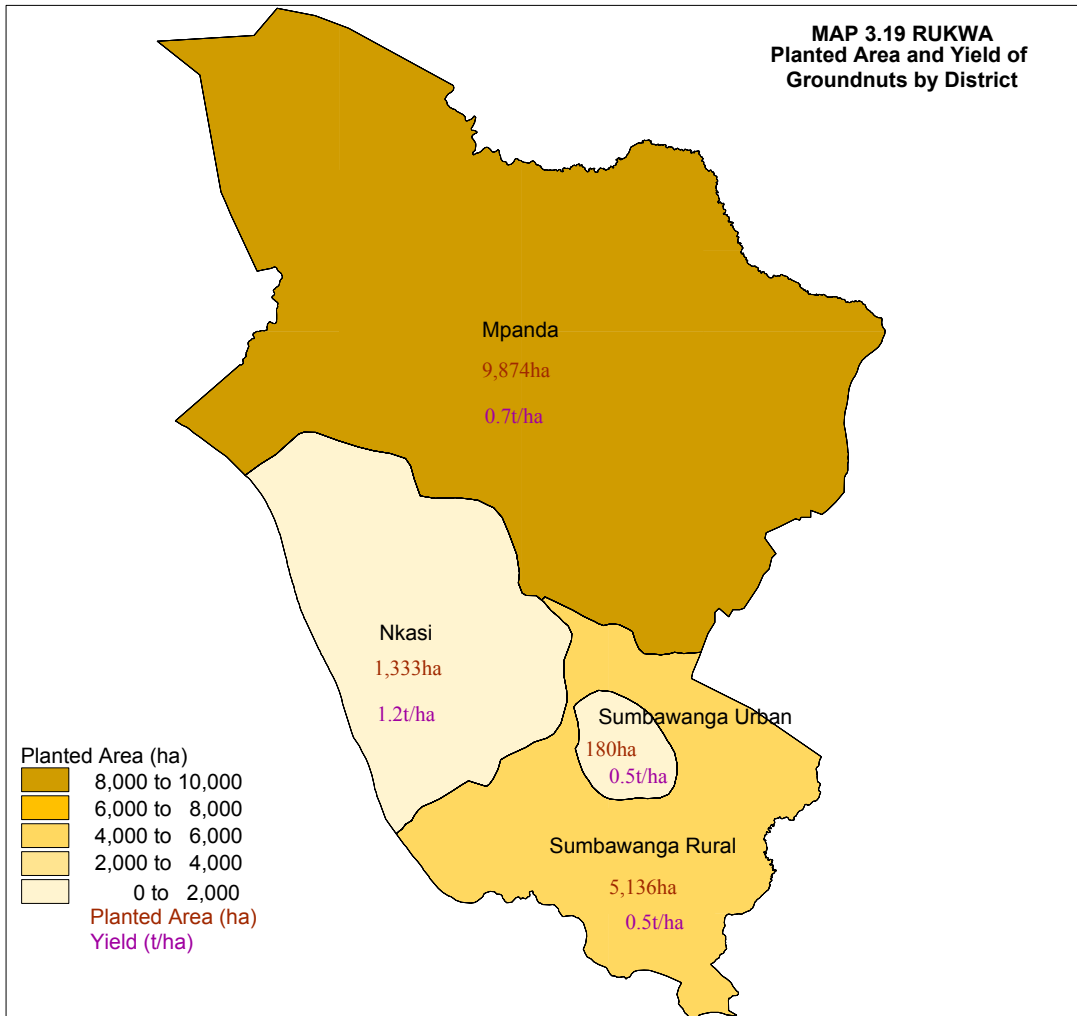
Table 3.6: Area, Production and Yield of Fruits and Vegetables by Season

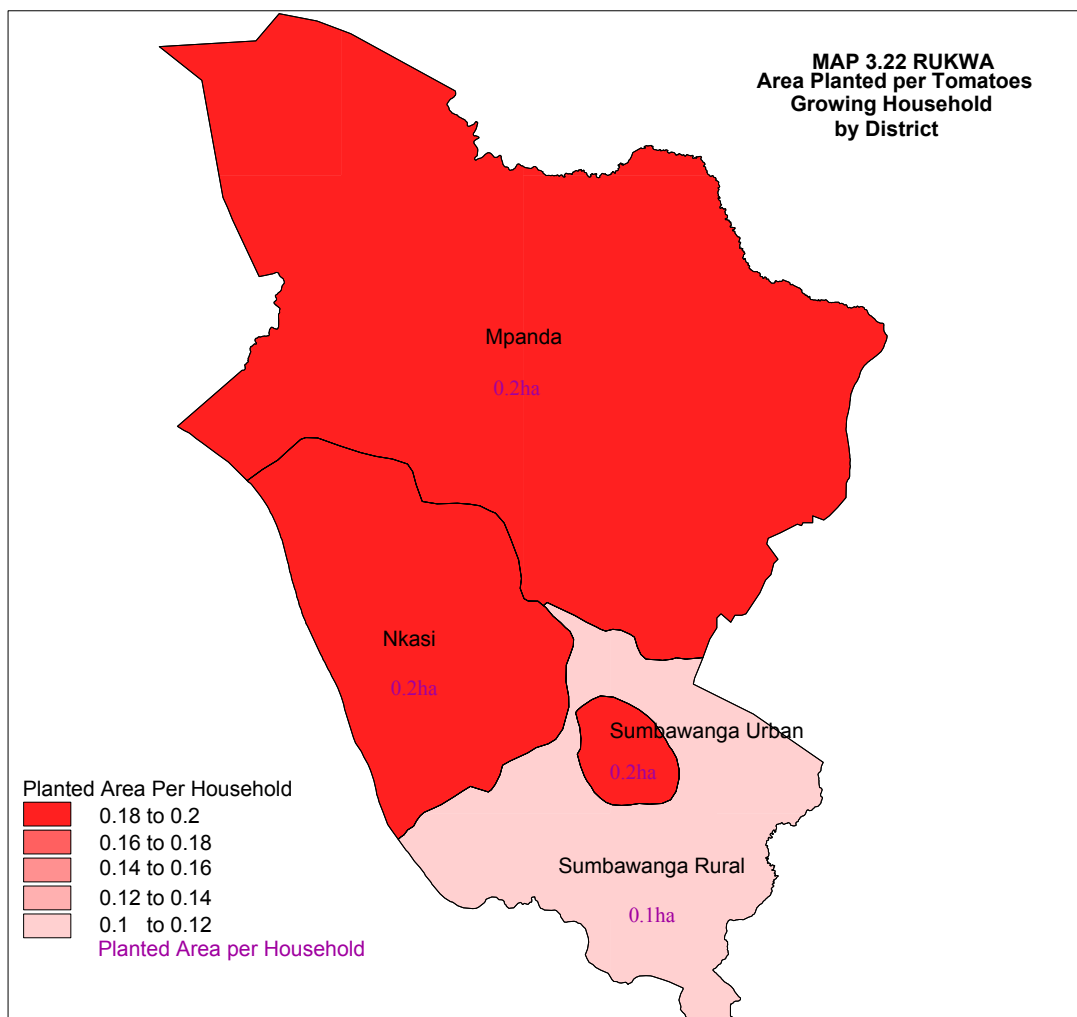
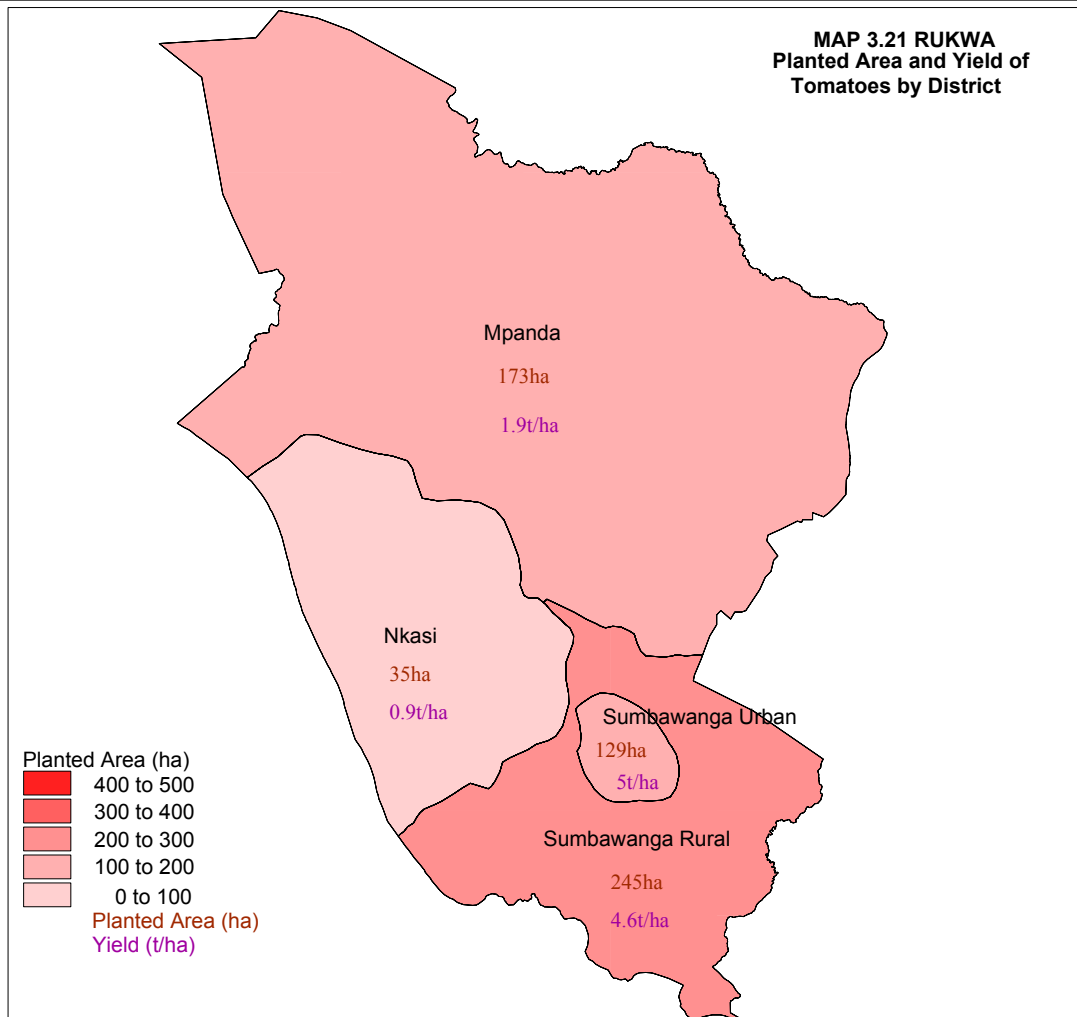
Crop	Wet Season			Total		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Tomatoes	583	2,136	3,665	583	2,136	3,665
Onions	266	1,139	4,279	266	1,139	4,279
Cabbage	176	739	4,212	176	739	4,212
Amaranths	125	110	879	125	110	879
Spinach	51	68	1,336	51	68	1,336
Pumpkins	22	12	540	22	12	540
Carrot	3	7	2	3	7	2
Total	1,225	4,211		1,225	4,211	



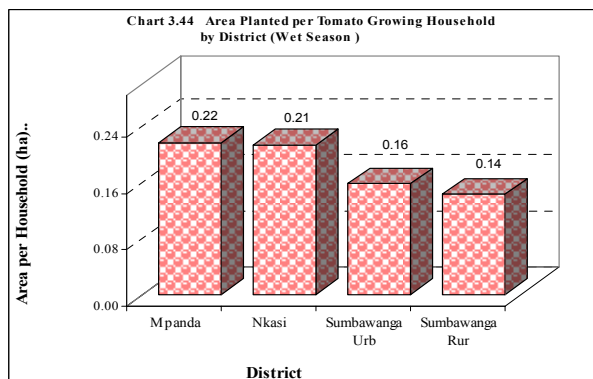
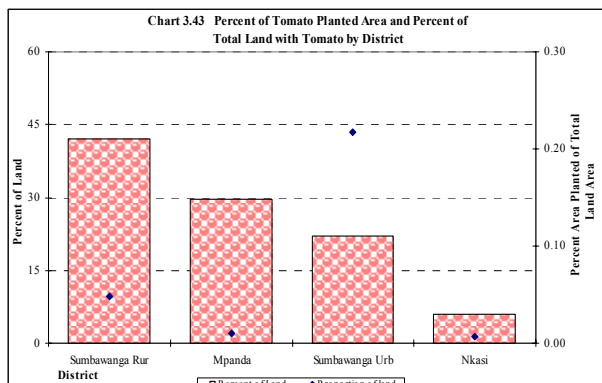
3.3.8.1 Tomatoes

Sumbawanga Rural district had the largest planted area of tomatoes (42% of the total area planted with tomatoes in the region), followed by Mpanda (29%), Sumbawanga Urban (22%) and Nkasi (6%) (Map 3.21).





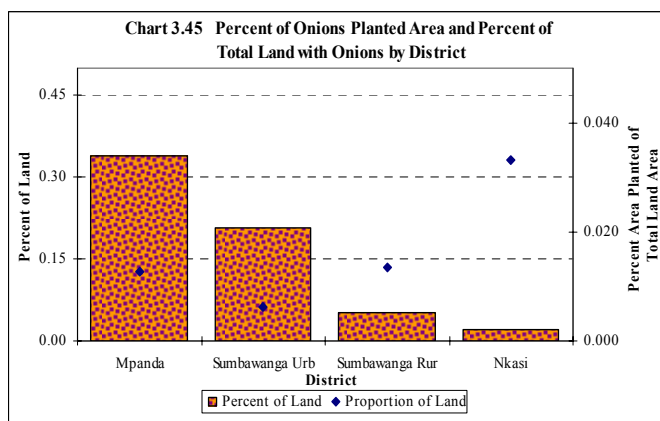
The district with the highest proportion of land with tomatoes was Sumbawanga Rural followed by Sumbawanga Urban district. With exception of Sumbawanga Rural district, the rest of the districts have relatively low percentage of land used



for tomato production (Chart 3.43). The largest area planted per tomato growing household was found in Mpanda district (0.22 ha) followed by Nkasi (0.21 ha), Sumbawanga Urban (0.16 ha) and Sumbawanga Rural (0.14 ha) (Chart 3.44 and Map 3.22). The total area planted with tomatoes accounted for 0.19 percent of the total area planted with annual crops and vegetables during the wet season.

3.3.8.2 Onions

The number of households growing onions in the region during the wet season was 1,718. This represented 1.0 percent of the total crop growing households in the region.

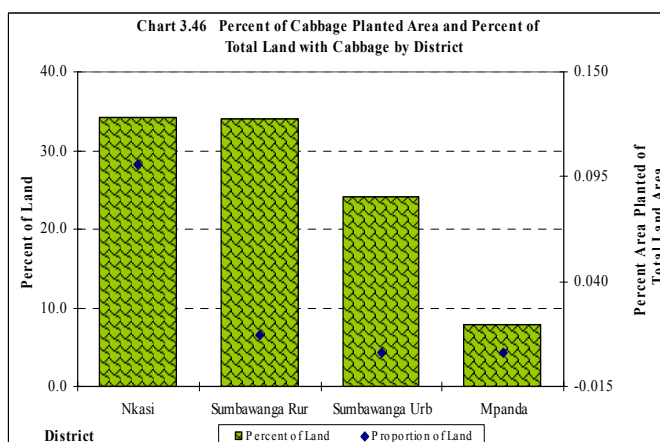


The district with the largest planted area with onions was Sumbawanga Urban (110 ha, 41.3% of the total area planted with onions in the region), followed by Mpanda (68 ha, 25.6%), Sumbawanga Rural (68 ha, 25.6%) and Nkasi (20 ha, 7.4%) (Chart 3.45 and Map 3.23 and 2,24).

The total area planted with onions accounted for 0.09 percent of the total area planted with annual crops and vegetables during the wet seasons.

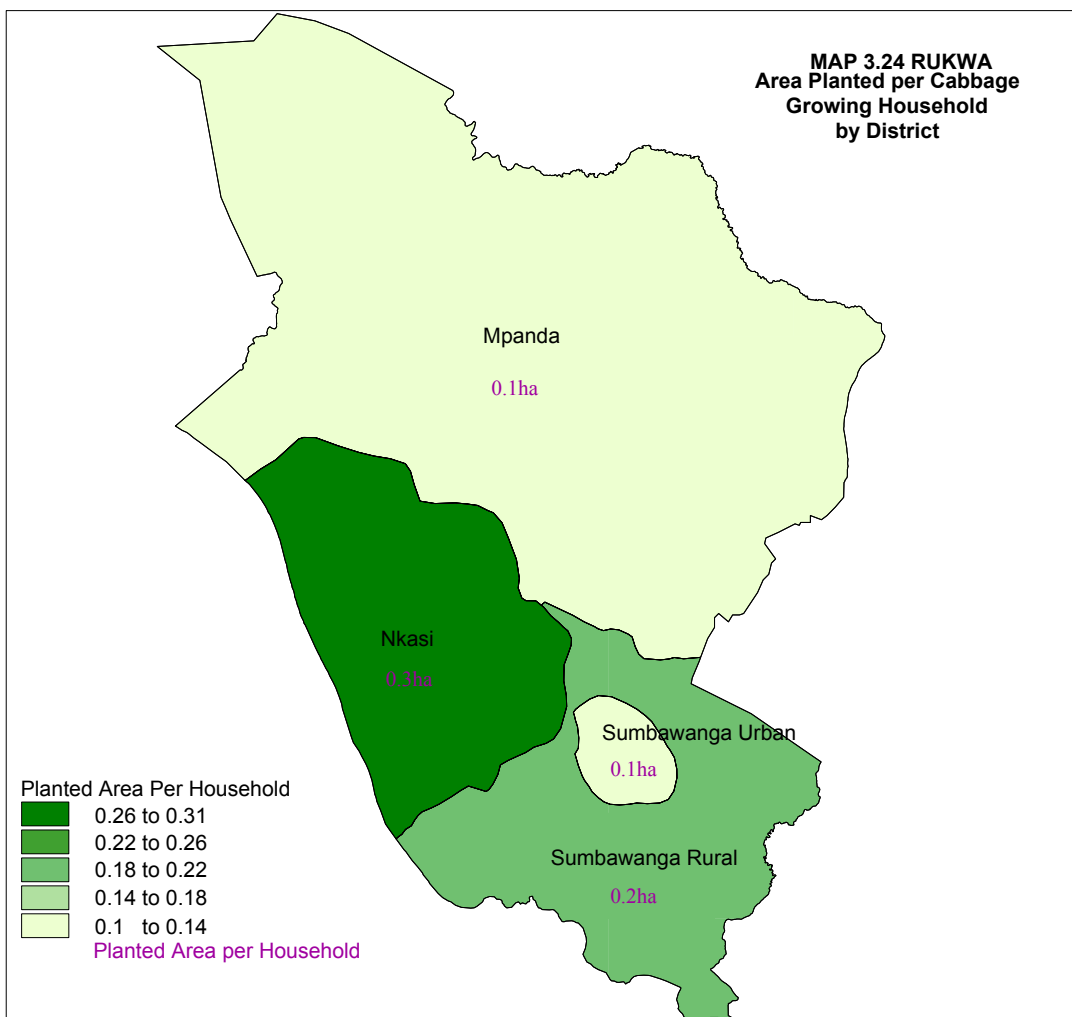
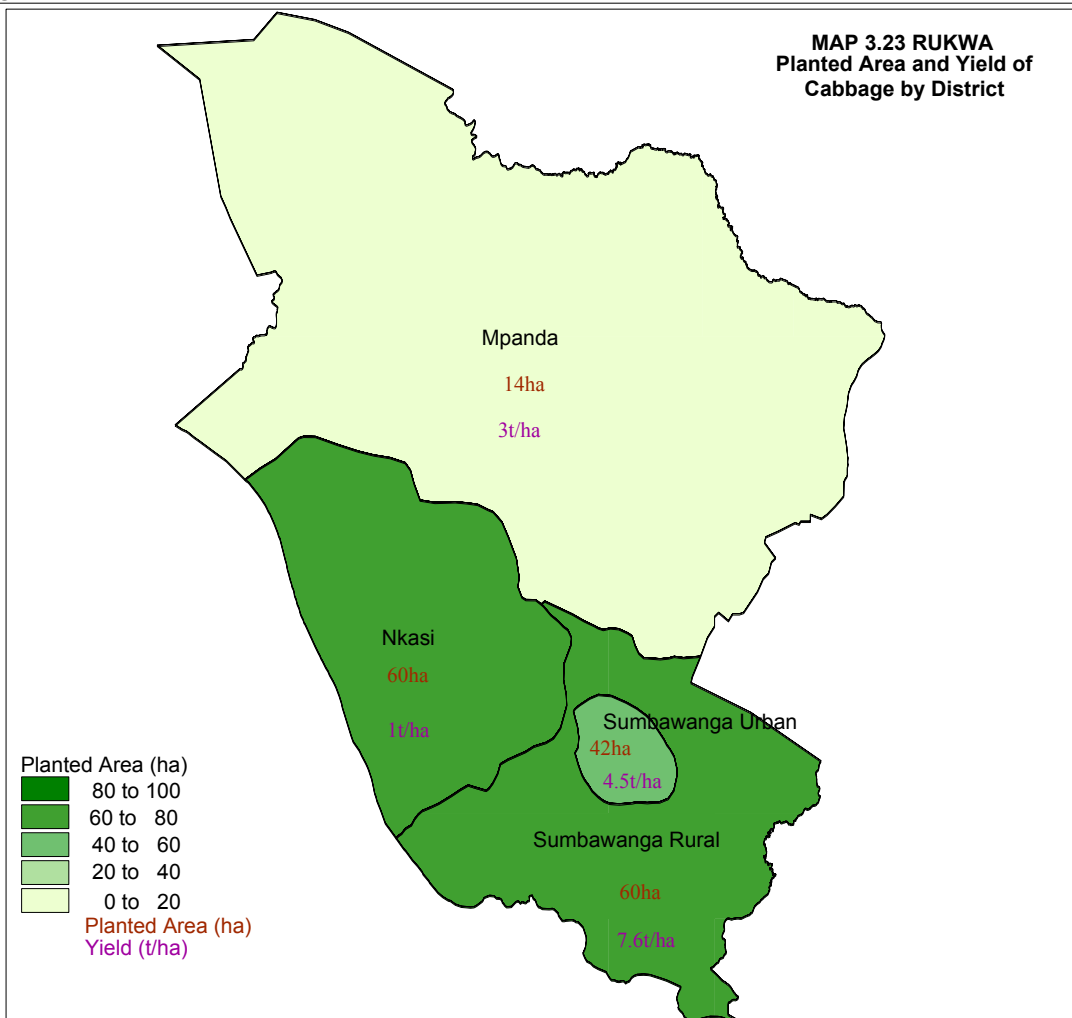
3.3.8.3 Cabbage

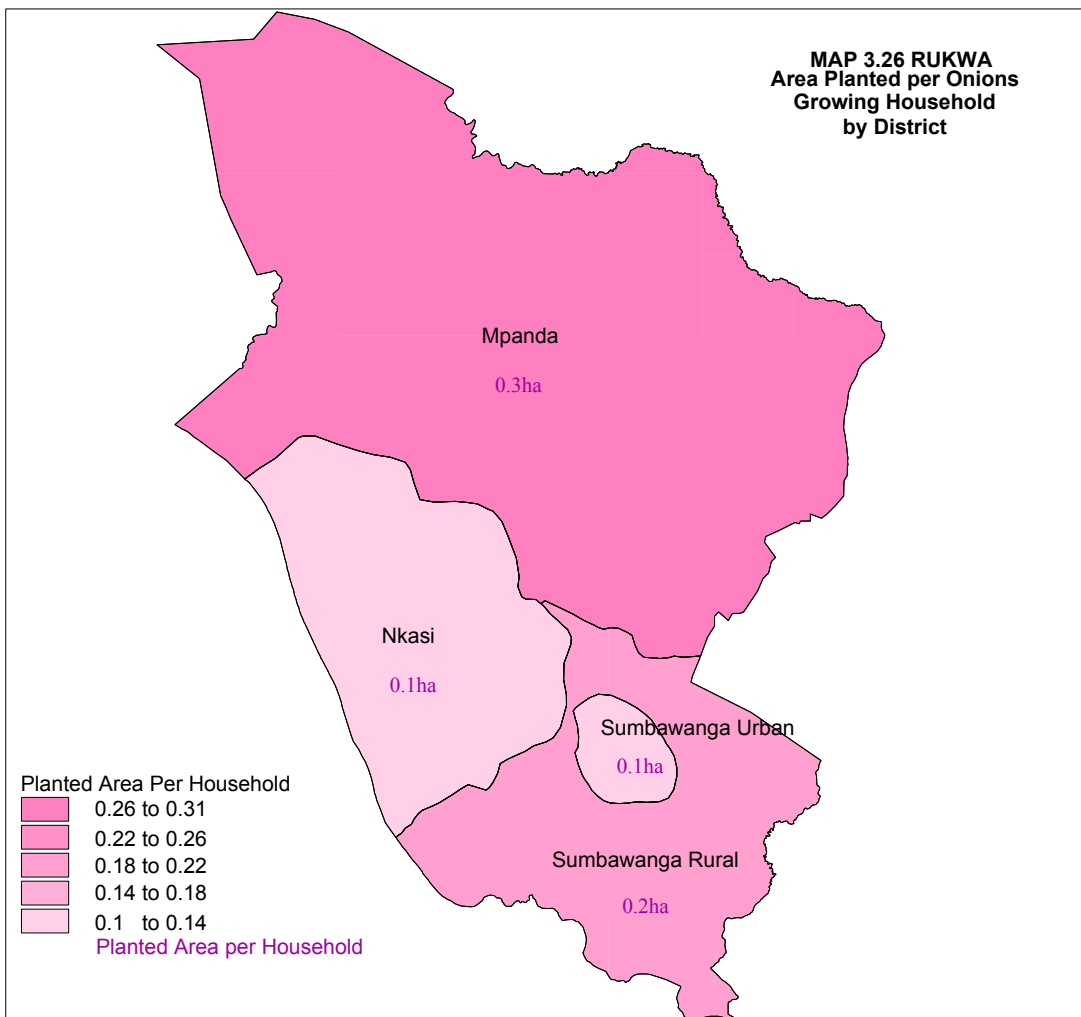
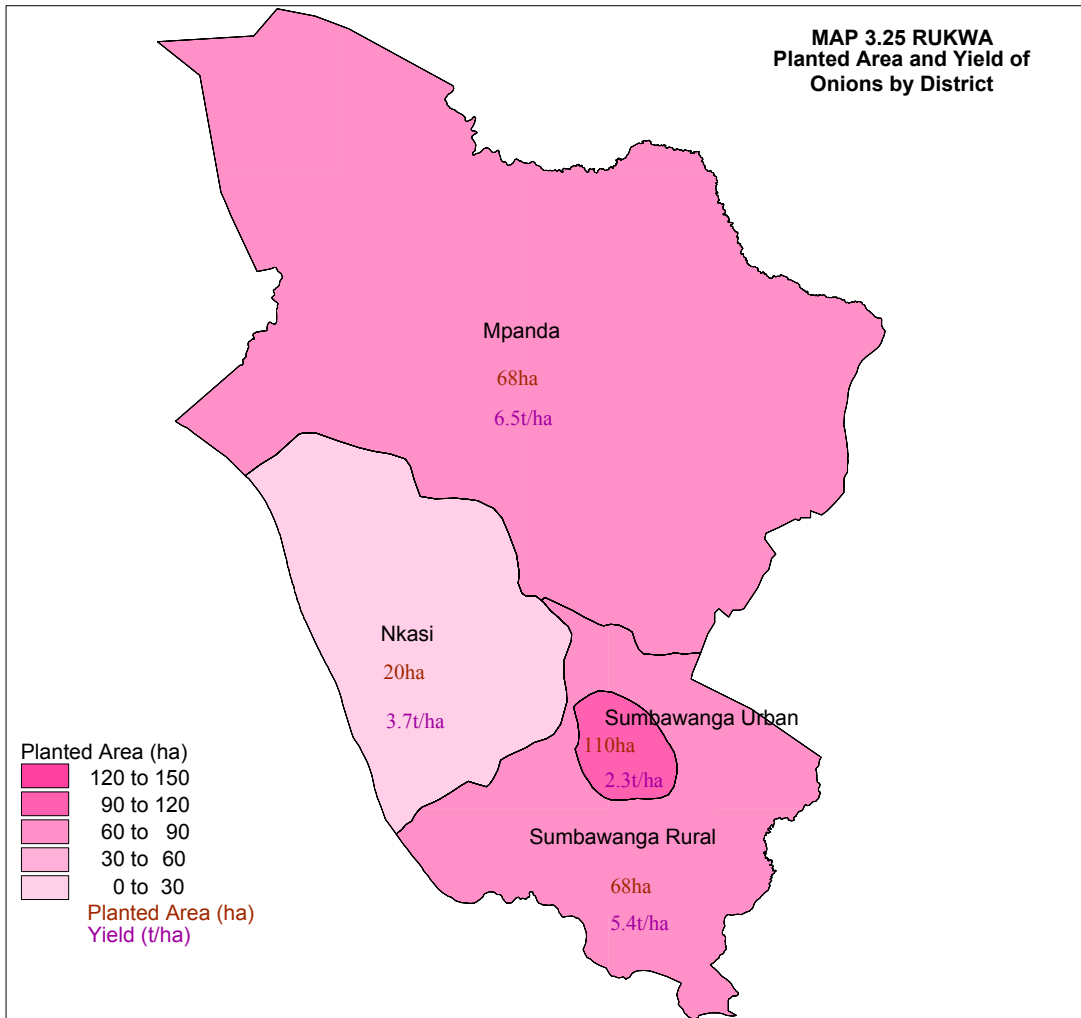
The number of households growing cabbages in the region during the wet season was 1,032 households in the wet season. This represents 0.6 percent of the total crop growing households in the region. Nkasi district had the largest planted area of cabbage (60 ha, 34.2% of the total area planted with cabbage in the region), followed by Sumbawanga Rural (59.6 ha, 33.9%), Sumbawanga Urban (42.2 ha, 24.1%) and Mpanda (13.6 ha, 7.8%) (Map 3.25 and 3.26)



The district with the largest proportion of the area planted with cabbage was Nkasi district (0.101 ha), followed by Sumbawanga Rural (0.012 ha), Mpanda (0.003%) and Sumbawanga Urban (0.002) (Chart 3.46).

The total area planted with cabbage accounted for 0.06 percent of the total area planted with annual crops and vegetables during the wet seasons.





3.3.9 Other Annual Crop Production

Most of the other annual crops are cash crops. An area of 3,295 ha was planted with cash crops and tobacco was the most prominent followed by cotton.

3.3.9.1 Tobacco

The quantity of tobacco produced was 3,251 tonnes.

Tobacco had a planted area of 3,256 hectares with all of being planted in the wet season. Tobacco production was concentrated in two districts with Nkasi having the largest planted area (99.3% of total area planted with tobacco in the region) and Sumbawanga Rural had (0.7%).

(Chart 3.43) (Map 3.29 and 3.30).

3.3.9.2 Cotton

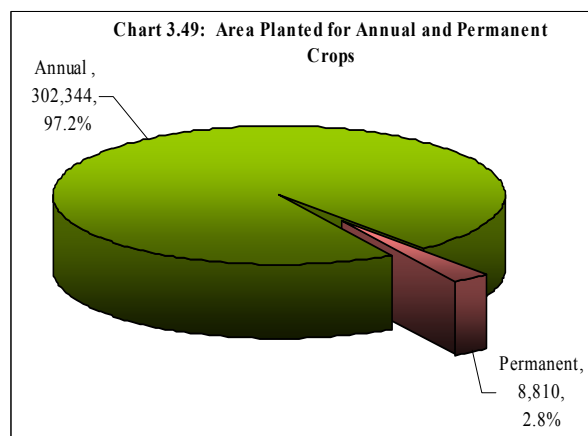
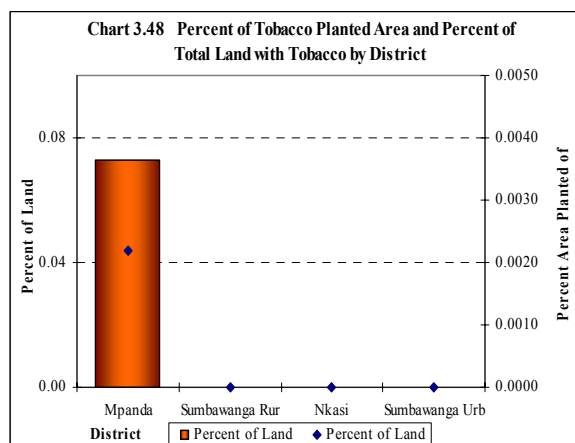
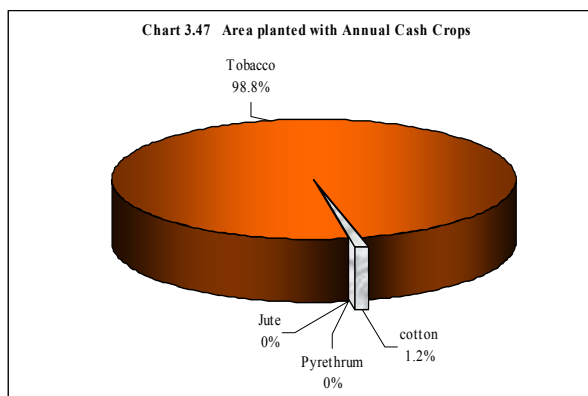
The production of cotton in Rukwa Region was only 13 tonnes from the planted area of 39 ha. It was produced during the wet season. The crop was only grown in Mpanda district (Map 3.27) with an average planted area of 0.3 hectares per cotton growing household (Map 3.28) (Chart 3.48)

3.4 Permanent Crops

Permanent crops (sometimes referred as permanent crops) are crops that normally take over a year to mature and once mature can be harvest for a number of years. For most crops, it is easy to determine if they are annual or permanent. However, for crops like cassava and bananas the distinction is not so clear. Cassava has varieties that mature within a year and produces only one harvest, whilst other varieties survive for more than one year and produces several harvests. In this census, cassava was treated as an annual crop. Conversely, bananas normally take less than a year to mature but survive for more than one year and are thus treated as a permanent crop. In this report the agriculture census results are presented for the most important permanent crops in terms of production, yield and area planted. Previous censuses and surveys did not measure these variables for permanent crops, therefore no time series analysis is made in this section.

Table 3.7: Area, Production and Yield of Annual Cash Crops by Season

Crop	Wet Season			Total		
	Area Planted (ha)	Quantity harvested (Tons)	Yield	Area Planted (ha)	Quantity harvested (Tons)	Yield
Tobacco	3,256	3,251	998	3,256	3,251	998
Cotton	39	13	333	39	13	333
Pyrethrum	0	0	0	0	0	0
Jute	0	0	0	0	0	0
Total	3,295	3,264		3,295	3,264	



The area of smallholders planted with permanent crops was 8,810 hectares (2.8% of the area planted with both annual and permanent crops in the region). However, the area planted with annual crops is not the actual physical land area as it double counts the area planted more than once in the same year whilst for the planted area for permanent crops is the same as physical planted land area. So the percentage physical area planted with permanent crops would be higher than indicated in (Chart 3.49).

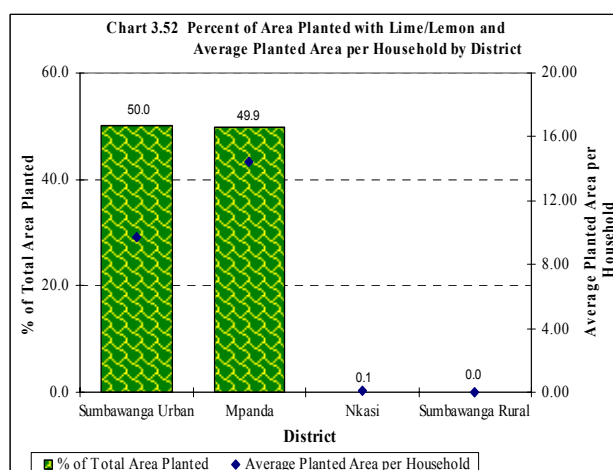
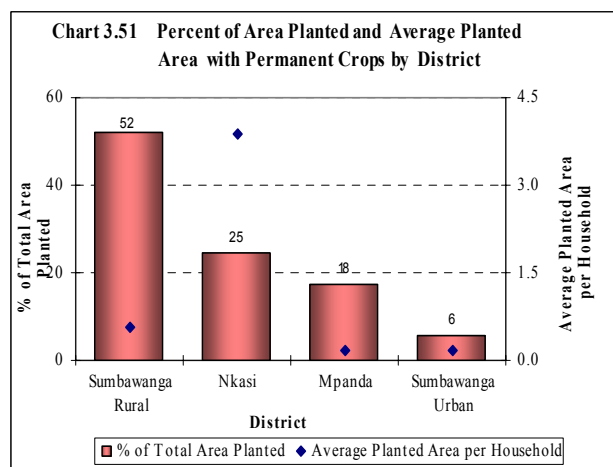
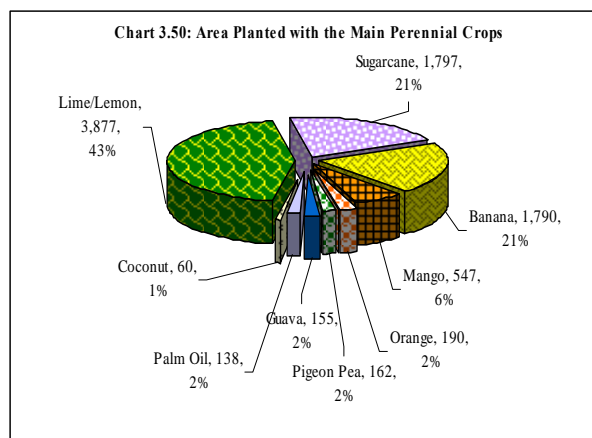
The most important permanent crop in Rukwa region is lime/lemon accounts for a planted area of 3,877 ha, (43% of the planted area of all permanent crops) followed by sugarcane (1,797 ha, 21%), banana (1,490 ha, 21%), mangoes (547 ha, 6%), orange (190 ha, 2%), pigeon pea (162 ha, 2%), guava (152 ha, 2%), palm oil (138 ha, 2%) and coconuts (60 ha, 1%). The remaining permanent crops are produced in very small quantities (Chart 3.50).

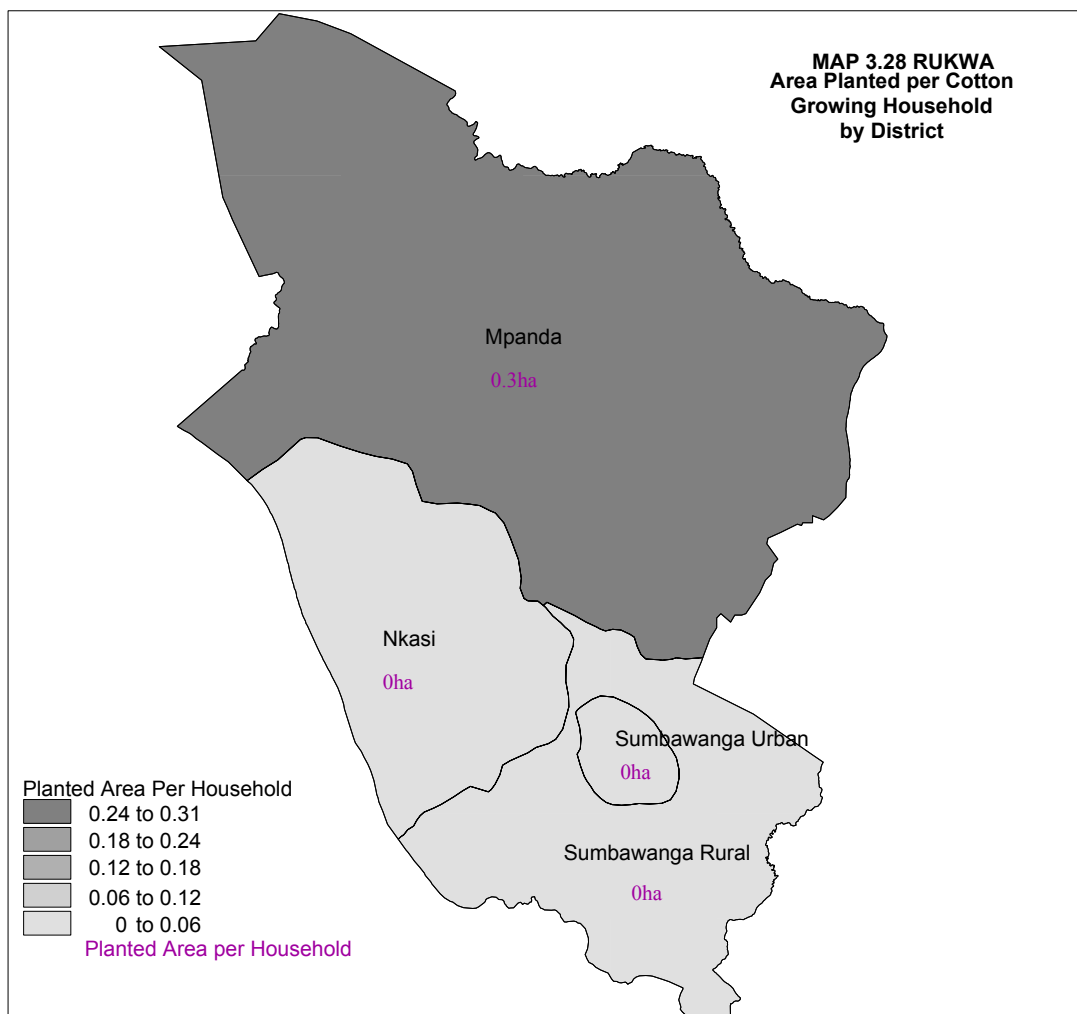
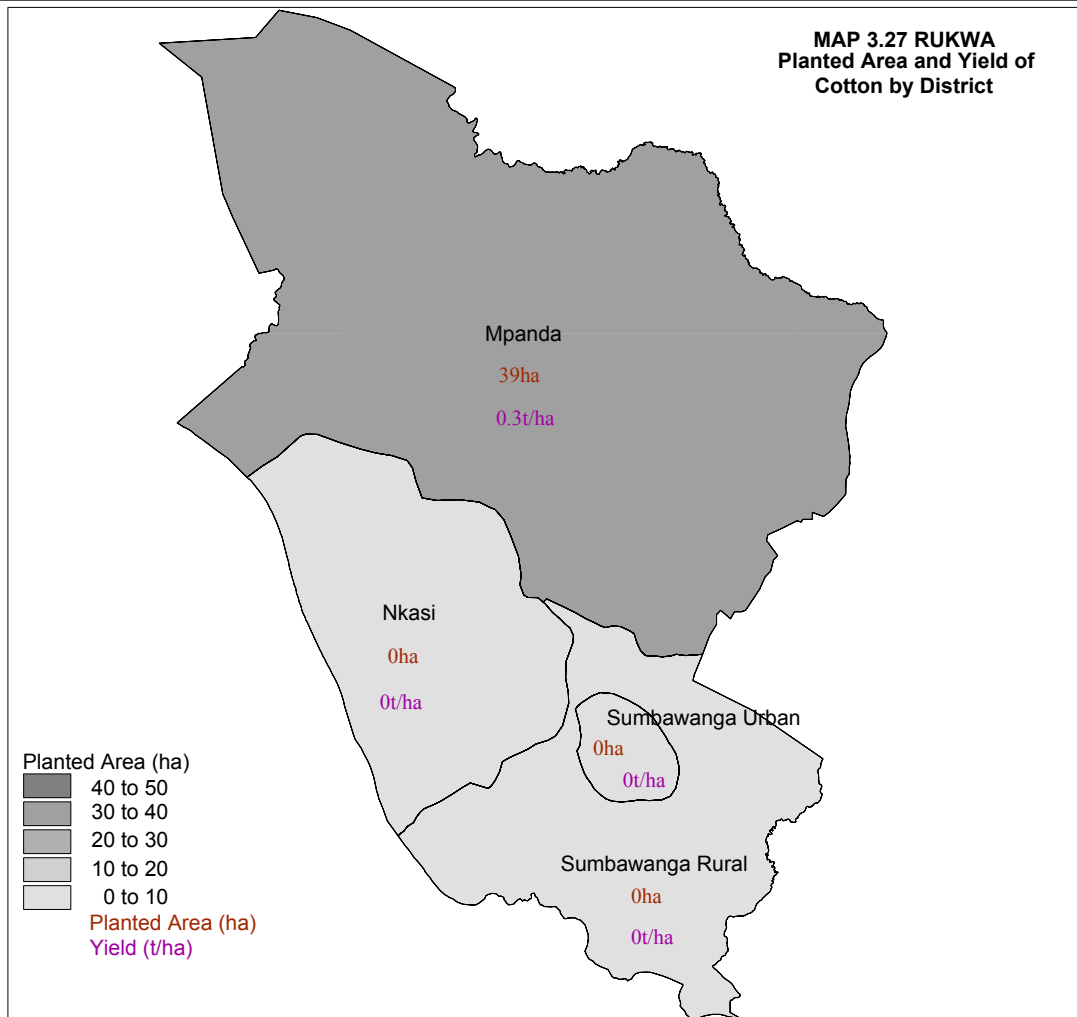
The district with the largest area planted with permanent crops by smallholders was Sumbawanga Rural district (4,635 ha, 52.2%). This is followed by Nkasi (2,187 ha, 24.6%), Mpanda (1,554 ha, 17.5%) and Sumbawanga Urban (5.3 ha, 5.7%). However, Sumbawanga Rural district had the largest area planted per permanent crop growing household (0.57 ha) followed by Nkasi (0.28 ha), Sumbawanga Urban (0.18 ha) and Mpanda (0.17 ha) (Chart 3.51).

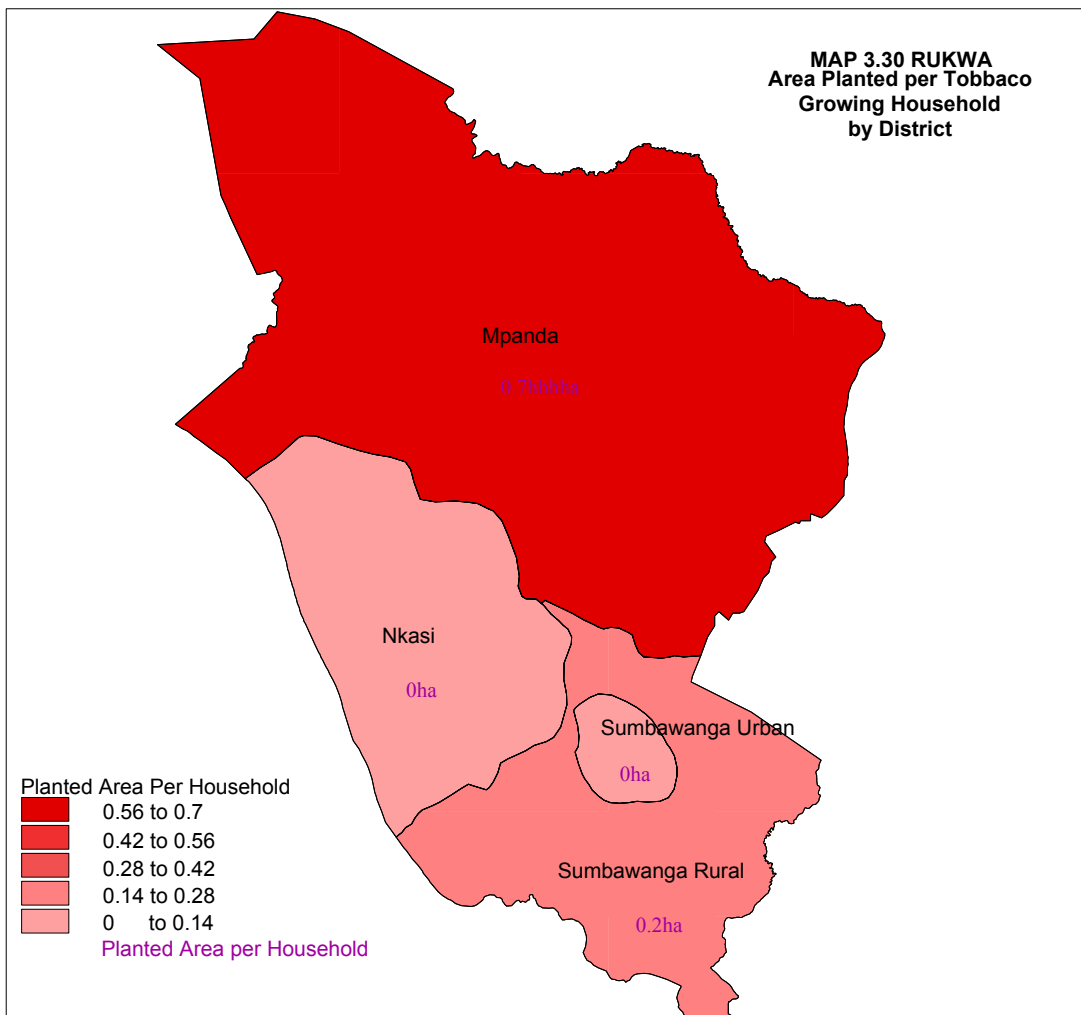
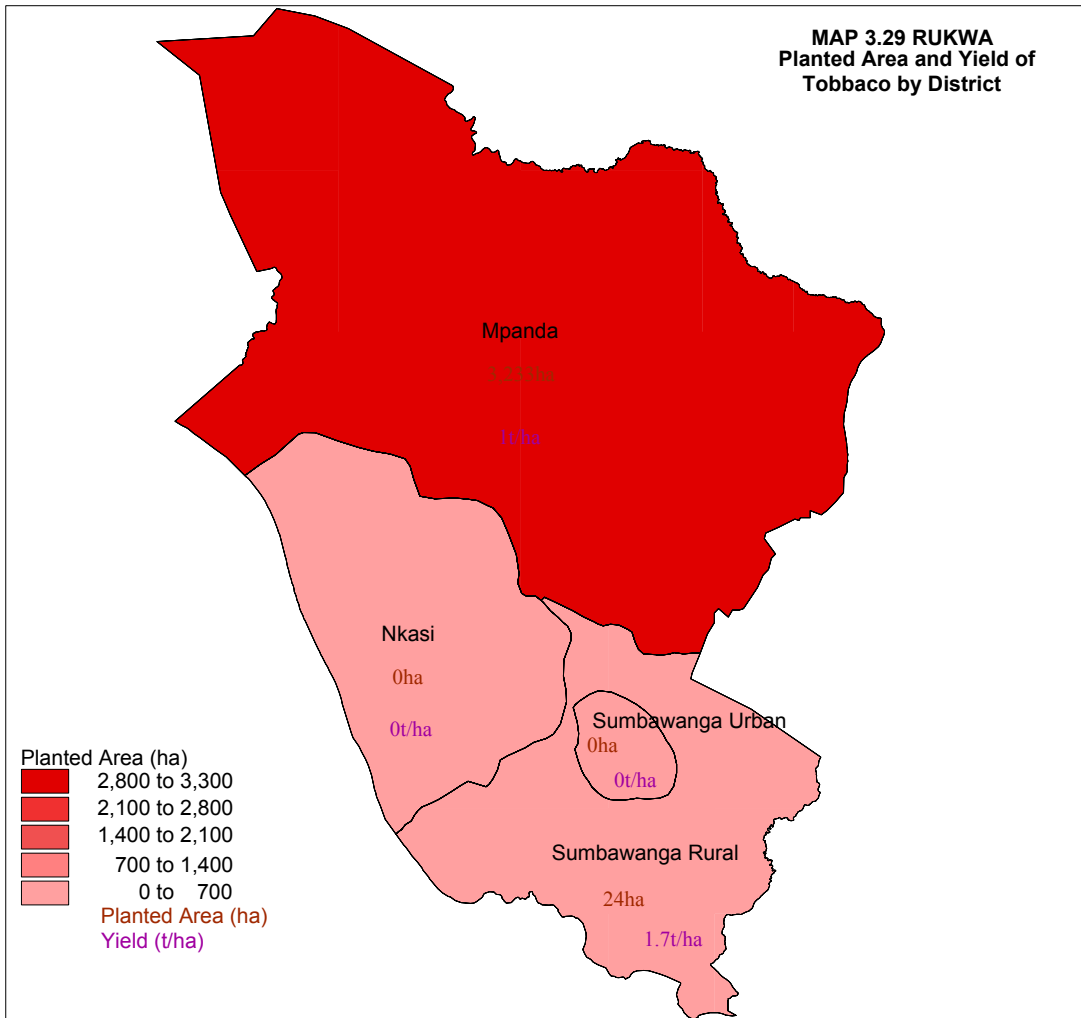
In terms of area of permanent crops planted expressed as a percentage of the total area planted with crops per district, Sumbawanga Rural had the highest (23%) followed by Mpanda (3%), Nkasi (2%) and Sumbawanga Urban (0.4%).

3.4.1 Lime/lemon

The total production of lime/lemon by smallholders was 133 tonnes. In terms of area planted, lime/lemon was the most important permanent crop grown by smallholders in the region. There were 401 lime/lemon growing households (0.23% of the total crop growing households). The average area planted with lime/lemon per household was relatively small at around 9.7 ha per lime/lemon growing household and the average yield obtained by smallholders was (7,389 kg/ha) from a harvest area of 18 hectares.



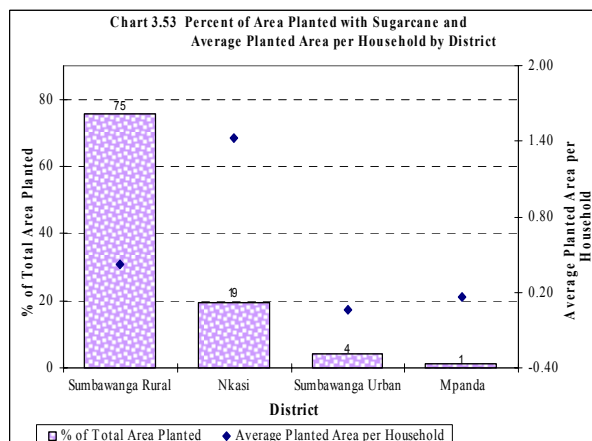




Sumbawanga Urban district had the largest area planted with lime/lemon (3,877 ha, 50.0%) followed closely by Mpanda (3,866 ha, 49.9%) and Nkasi (11 ha, 0.1%). Sumbawanga Rural did not grow any lime/lemon. (Map 3.31). However, the average area planted with lime/lemon per growing household was highest in Mpanda (14.4 ha) followed by Sumbawanga Urban (9.7 ha) and Nkasi (0.08 ha) (Chart 3.52 and Map 3.32).

3.4.2 Sugarcane

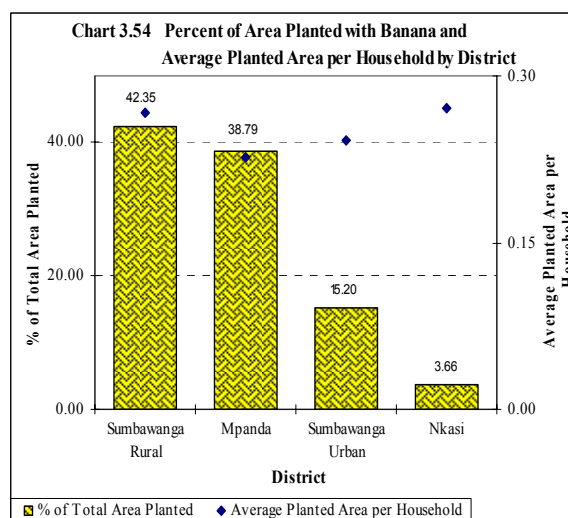
The total production of sugarcane by smallholders was 54,638 tonnes. In terms of area planted, sugarcane was the second most important permanent crop grown by smallholders in the region. There were 4,327 households (2.5% of the total crop growing households). The average area planted with sugarcane per household was relatively small at around 0.9 ha per sugarcane growing household and the average yield obtained by smallholders was (13,381 kg/ha) from a harvest area of 4,083 hectares.

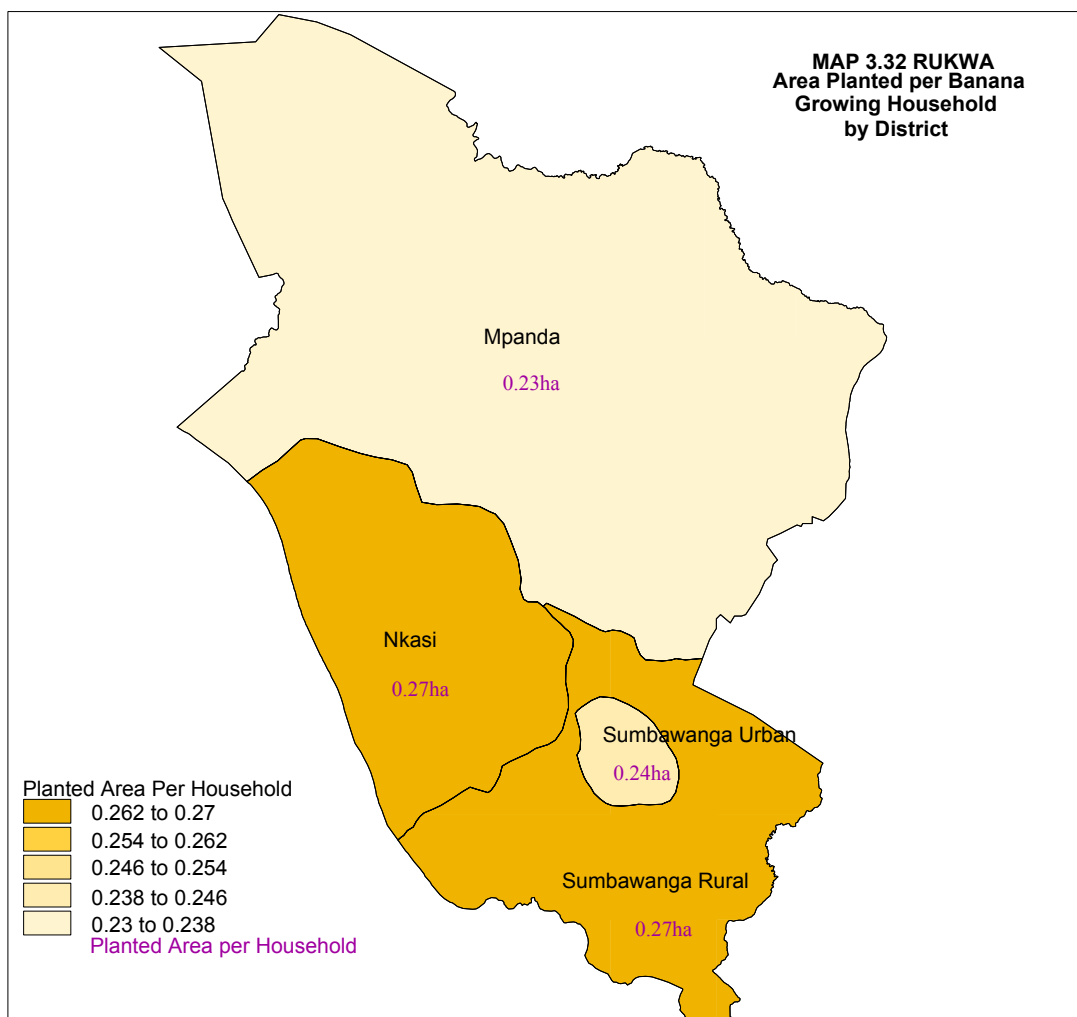
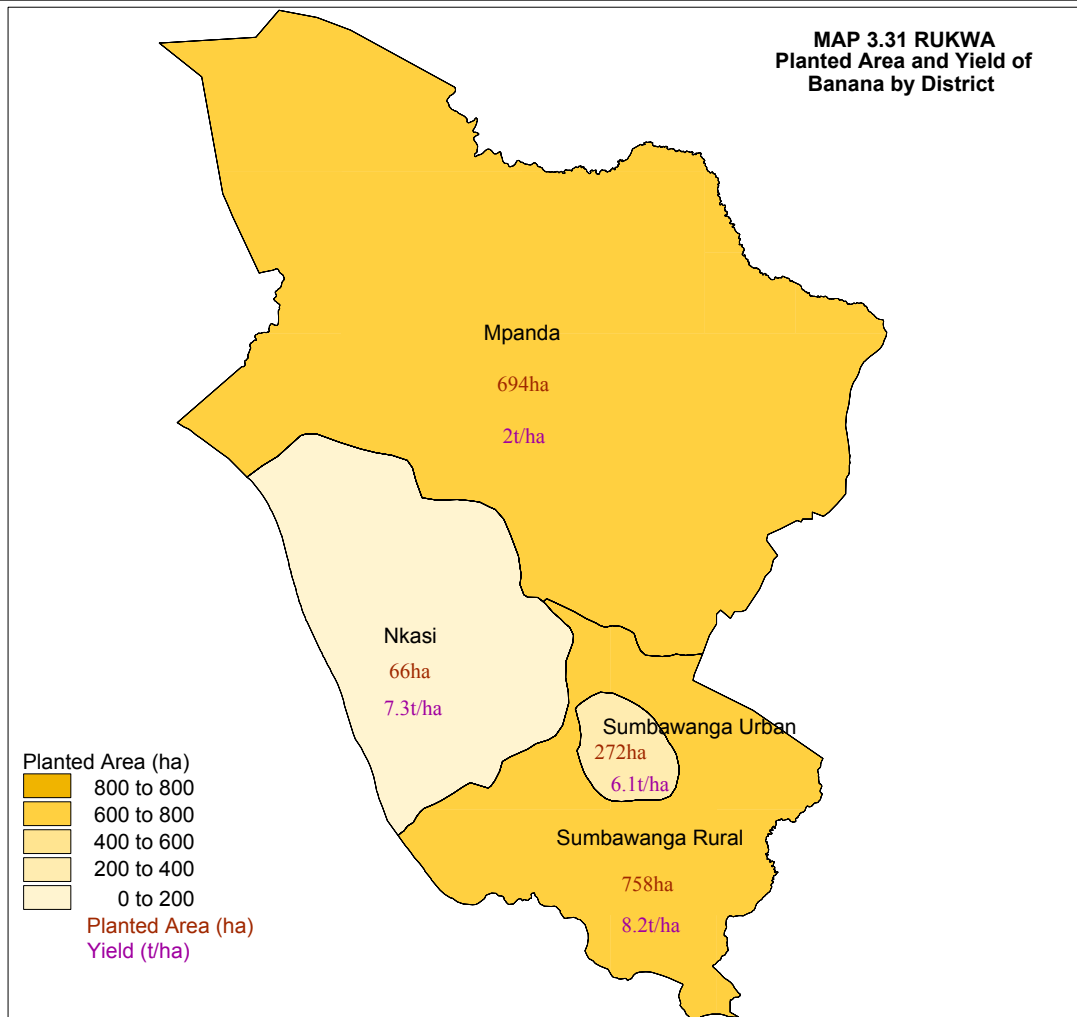


Sumbawanga Rural district had the largest area planted with sugarcane (1,356 ha, 75%) followed by Nkasi (346 ha, 19%), Sumbawanga Urban (74 ha, 4%) and Mpanda (22 ha, 1%) (Map 3.31). However, the average area planted with sugarcane per growing household was highest in Nkasi district (1.43 ha) followed by Sumbawanga Rural (0.43 ha), Mpanda (0.16 ha) Sumbawanga Urban (0.06 ha) (Chart 3.52 and Map 3.32).ha) (Chart 3.53 and Map 3.34).

3.4.3 Banana

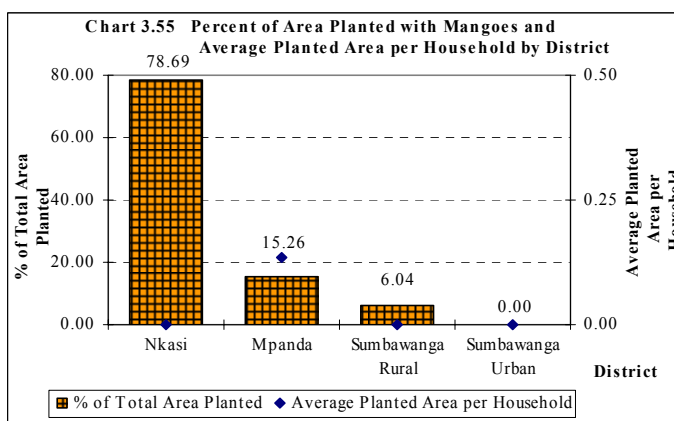
The total production of banana by smallholders was 11,471 tonnes. In terms of area planted, banana was the third most important permanent crop grown by smallholders in the region. It was grown by 7,261 households (4.2% of the total crop growing households). The average area planted with banana per household was relatively small at around 0.25 ha per banana growing household and the average yield obtained by smallholders was 11,357 kg/ha from a harvested area of 1010 hectares. Sumbawanga Rural district had the largest planted area of bananas in the region (758 ha, 42%) followed closely by Mpanda (694 ha, 39%), Sumbawanga Urban (272 ha, 15%) and Nkasi (66ha, 4%) (Map 3.35). The districts with largest area planted with banana per banana growing household were Sumbawanga Rural and Nkasi having (0.27ha) each followed by Sumbawanga Urban (0.25 ha) and Mpanda (0.23 ha) (Chart 3.49 and Map 3.36).





3.4.4 Mangoes

The total production of mangoes by smallholders was 15,571 tonnes. In terms of area planted, mangoes were the fourth most important permanent crop grown by smallholders in the region. It was grown by 4,033 households (2.3% of the total crop growing households). The average area planted with mango per household was relatively small at around 0.4 ha per mangoes growing household and the average yield obtained by smallholders was (6,537 kg/ha) from a harvested area of (2,382 ha).



Nkasi has the largest area of mangoes in the region (2,020 ha, 78.7%) followed by Mpanda (392 ha, 15.3%) and Sumbawanga Rural (155 ha, 6.0%).

Table 3.8: Land Clearing Methods

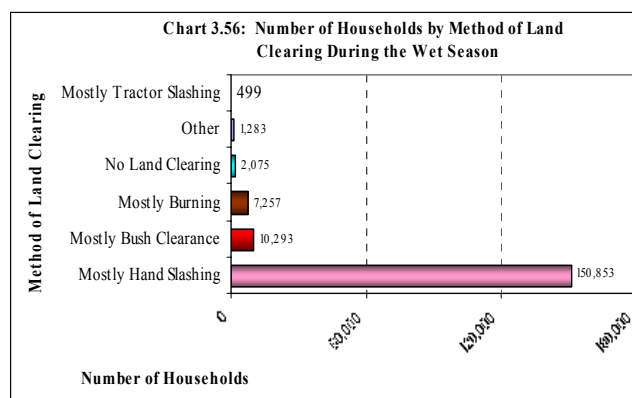
However, Sumbawanga Urban district did not grow any mango (Map 3.37). Moreover, Nkasi district had the highest average area planted per mangoes growing household of (1.9 ha), Sumbawanga Rural (0.14 ha) and Mpanda (0.13 ha) (Map 3.38).

Method of Land Clearing	Wet Season			Total		
	Number of Households	Area Planted	%	Number of Households	Area Planted	%
Mostly Hand Slashing	150,853	266,794	88.2	150,853	266,794	88.2
No Land Clearing	2,075	3,557	1.2	2,075	3,557	1.2
Mostly Bush Clearance	10,293	19,399	6.4	10,293	19,399	6.4
Mostly Burning	7,257	9,070	3.0	7,257	9,070	3.0
Mostly Tractor Slashing	499	789	0.3	499	789	0.3
Other	1,283	2,735	0.9	1,283	2,735	0.9
Total	172,261	302,344	100	172,261	302,344	100.0

3.5 Input/Implement Use

3.5.1 Methods of Land Clearing

Land clearing is a common pre-tillage operation practiced by most farmers in the region. Land clearing is divided into two categories: bush clearing, which by definition implies either expansion into virgin areas or into areas which have been left fallow for a long period. The other category, which includes burning, hand slashing or tractor slashing, is normally an annual clearing exercise to remove vegetation growth from the previous season.

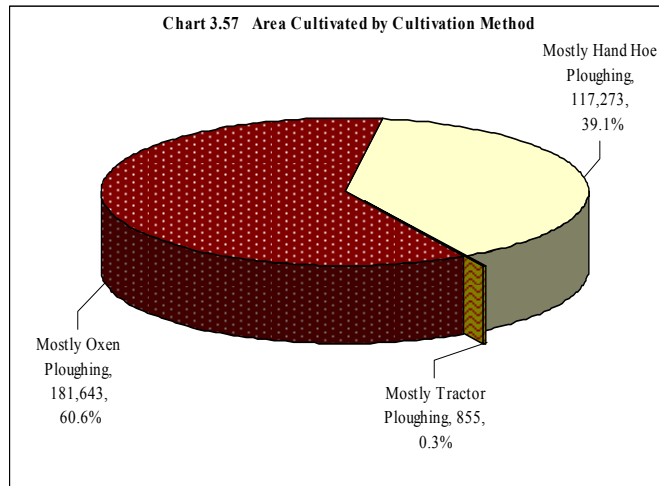


Hand slashing is the most widespread method used for land clearing. The area cleared by hand slashing in the region during the wet season was 266,794 ha which represented 88.2 percent of the total planted area. Bush clearance, burning and tractor slashing are less important methods for land clearing and they represent 6.4, 3.08 and 0.9 percent respectively (Chart 3.56 and Table 3.8).

3.5.2 Methods of Soil Preparation

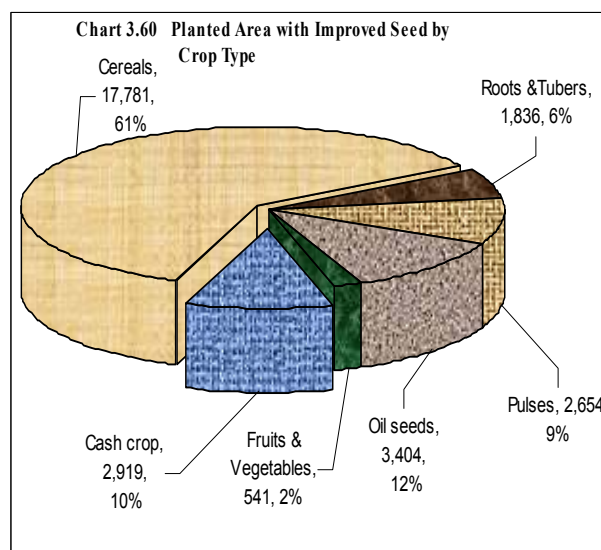
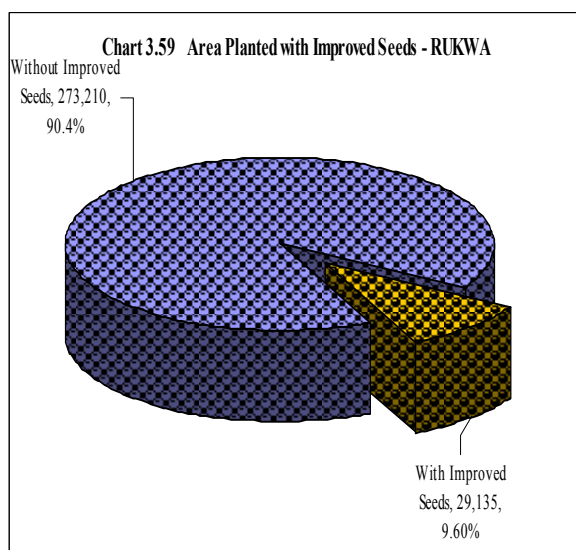
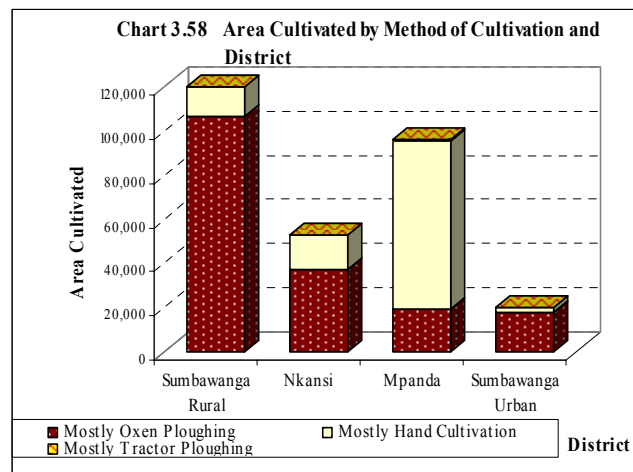
Oxen ploughing was the most used method for soil preparation as it was used in an area of 181,141 ha which represented 60.2 percent of the total prepared area, followed by hand hoe ploughing (119,096 ha, 39.6%) and tractor ploughing (583 ha, 0.2%) (Chart 3.57).

In Rukwa region, Sumbawanga Rural district has the largest planted area cultivated with oxen (106,662 hectares, 58.7%) followed by Nkansi (37,412 ha, 20.6%), Mpanda (19,499, 10.7%) and Sumbawanga Urban (18,070 ha, 9.9%).



3.5.3 Improved Seed Use-*

The planted area using improved seeds during the wet season was estimated at 29,135 ha which represents 9.6 percent of the total planted with the annual crops and vegetables during the season. The area planted without using improved seeds was (273,210 ha, 90.4%)



Cereals had the largest area planted with improved seeds (17,781 ha, 61% of the planted area with improved seeds) followed by oil seed (3,404 ha, 12%) cash crops (2,919 ha, 10%) pulses (2,654 ha, 9%), roots and tubers (1,836 ha, 6%) and fruit and vegetables (541 ha, 2%), (Chart 3.54). However, of all crop types fruits and vegetables had the largest proportion of its planted area under improved seeds. with improved seeds (Chart 3.55).

3.5.4 Fertilizers Use

The use of fertilisers on annual crops was very small with a planted area of only 42,191 ha (14% of the total planted area in the region). The planted area without fertiliser for annual crops was 260,153 hectares representing 86 percent of the total planted area with annual crops. Of the planted area with fertiliser application, farm yard manure was applied to 26,741 ha

which represents 8.8 percent of the total planted area (63.3% of the area planted with fertiliser application in the region). This was followed by Inorganic fertilizers 11,968 ha, 3.9 percent of total area planted (28.3 of the area planted with fertiliser application) compost was used on a very small area (3,518 ha, 1.2%) of the total planted area and 8.3 percent of the area planted with fertilizers.

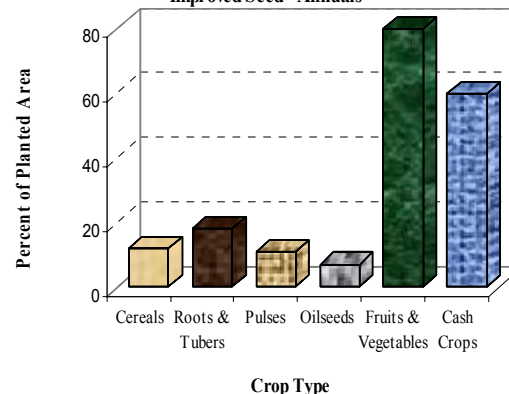
The highest percentage of the area planted with fertilizer (all types) was in Sumbawanga Urban district (37.3%) followed by Nkasi (12.7%), Sumbawanga Rural (12.3%) and Mpanda (12.0%) (Table 3.9 and Charts 3.62 and 3.63).

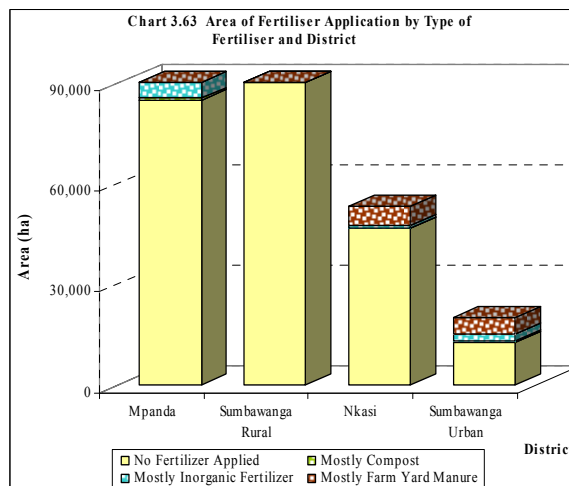
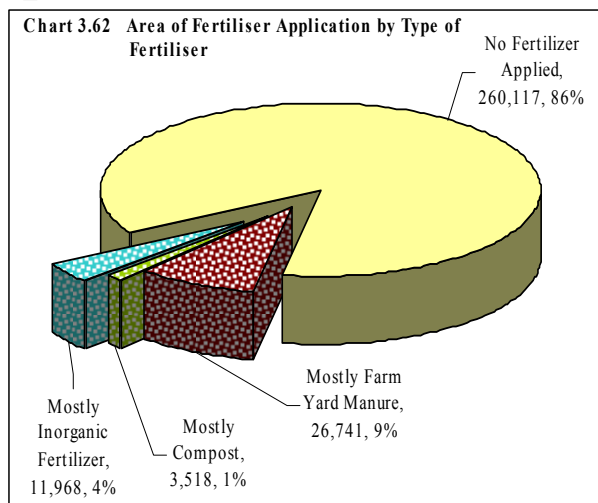
Most annual crop growing households used different fertilisers (approximately 171,578 households, 99.6%) (Map 3.39). The percentage of the planted area with applied fertilisers was highest for cereals (89.3% of the area planted with fertilizers). This was far followed by pulses (4.9%), oilseeds & oil nuts together with fruits & vegetables had (2.1%) each and cash crops had (0.4%) (Table 3.9)

Table 3.9 Planted Area by Type of Fertiliser Use and District - Wet Season

District	Fertilizer Use				Total Planted Area
	Mostly Farm Yard Manure Planted Area	Mostly Compost Planted Area	Mostly Inorganic Fertilizer Planted Area	No Fertilizer Applied Planted Area	
Mpanda	2,746	762	8,030	84,693	96,231
Sumbawanga					
R					32,698
N					53,306
S					20,109
U					02,344
T					

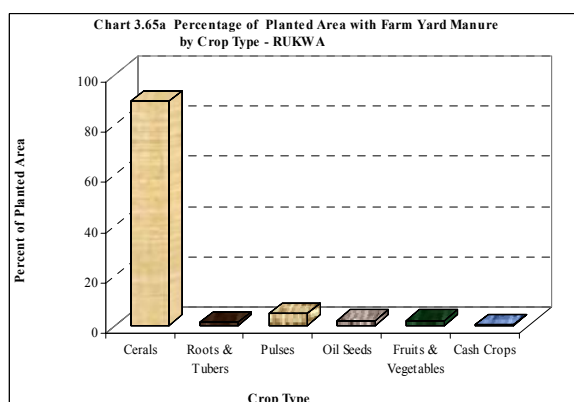
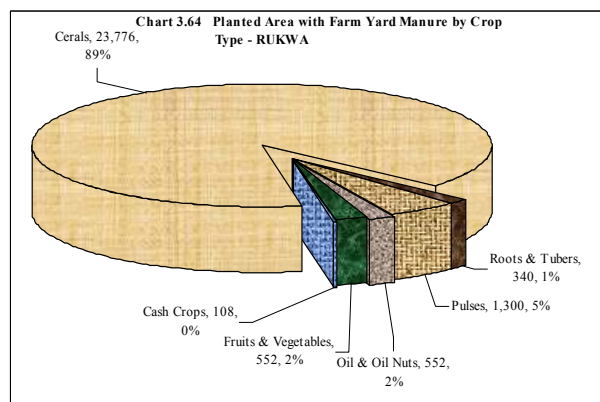
Chart 3.61 Percentage of Crop Type Planted Area with Improved Seed - Annuals





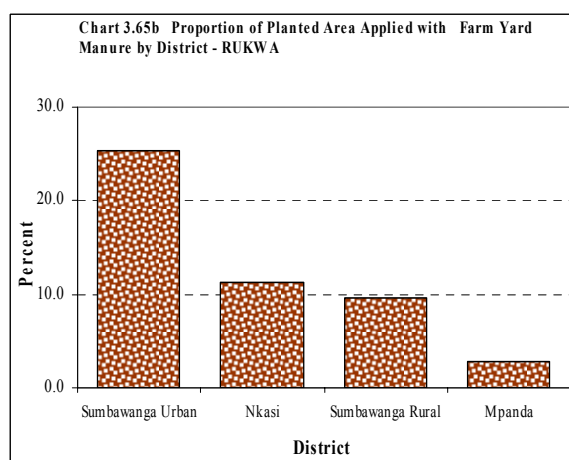
3.5.4.1 Farm Yard Manure Use

The total planted area applied with farm yard manure in Rukwa region during wet season was 26,741 hectares, this is equivalent to 8.8 percent of the total area planted during that season. The number of households that applied farm yard in



their annual crops during the wet season was 18,756. (Table 3.9). Cereals had the largest area applied with farm yard manure (89.3%), followed by pulses (4.9%). Oil seeds and oil nuts together with fruits and vegetables had (2.1%), roots and tubers (1.3%) and cash crops (0.4%) (Chart 3.64a).

Sumbawanga Rural district had the largest area applied with farm yard manure (48.1% of the total planted area in the region) followed by Nkasi (22.5%), Nkasi (6.9%) Sumbawanga Urban (19.1%) and Mpanda (10.3%) (Table 3.9).



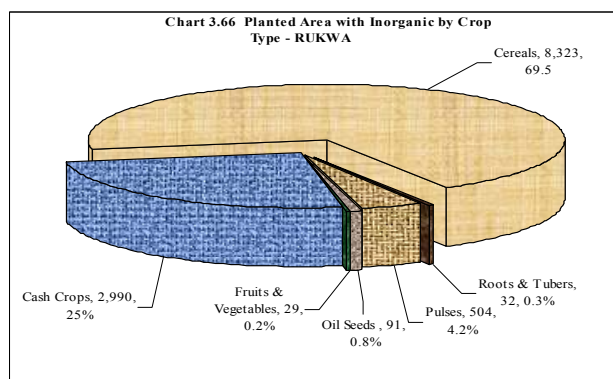
The proportion of planted area applied with farm yard manure was highest for cereals (89.3%), followed by pulses (4.9%), fruits and vegetables together with oil seeds and oil nuts had (2.1%) each, roots and tubers and cash crops (0.4%) (Chart 3.65a).

Proportionally, farm yard manure was mostly used in Sumbawanga urban by (25.4% of the total planted area in the district) followed by Nkasi (11.3%), Sumbawanga Rural (9.7%), and Mpanda (2.9%) (Chart 3.65b).

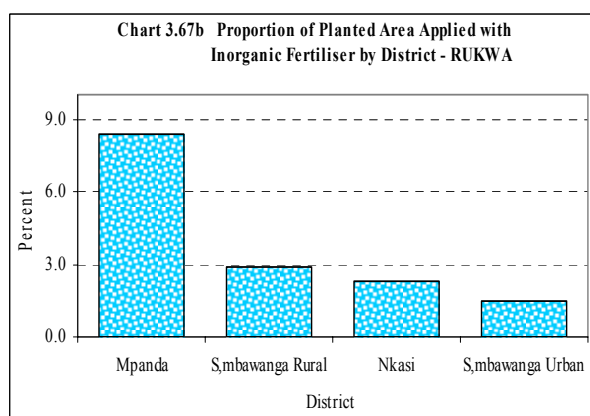
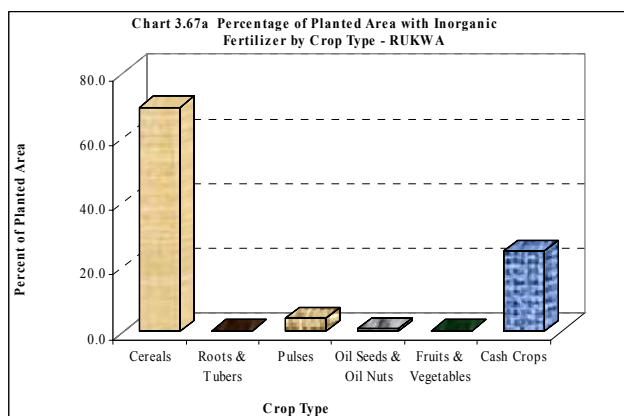
For permanent crops, most farm yard manure was used in the production of sugarcane (72.7%), followed by banana (19.8%), coconut (6.9%) and guava (0.5%).

3.5.4.2 Inorganic Fertiliser Use

The total planted area applied with inorganic fertilisers in Rukwa region was 11,968 hectares which represents 3.9 percent of the total planted area with annuals in the region and 28.3 percent of the total planted area with fertilisers. The number of households that applied inorganic fertilizer

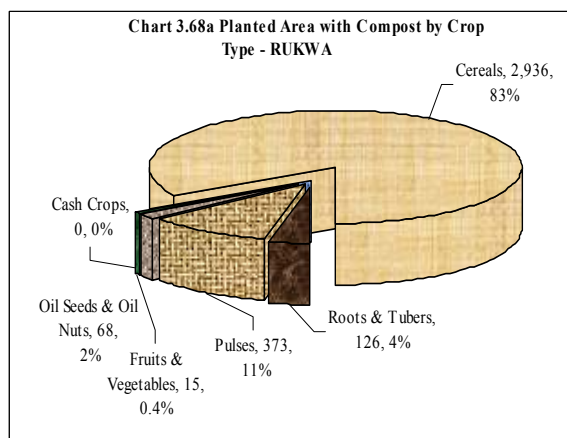


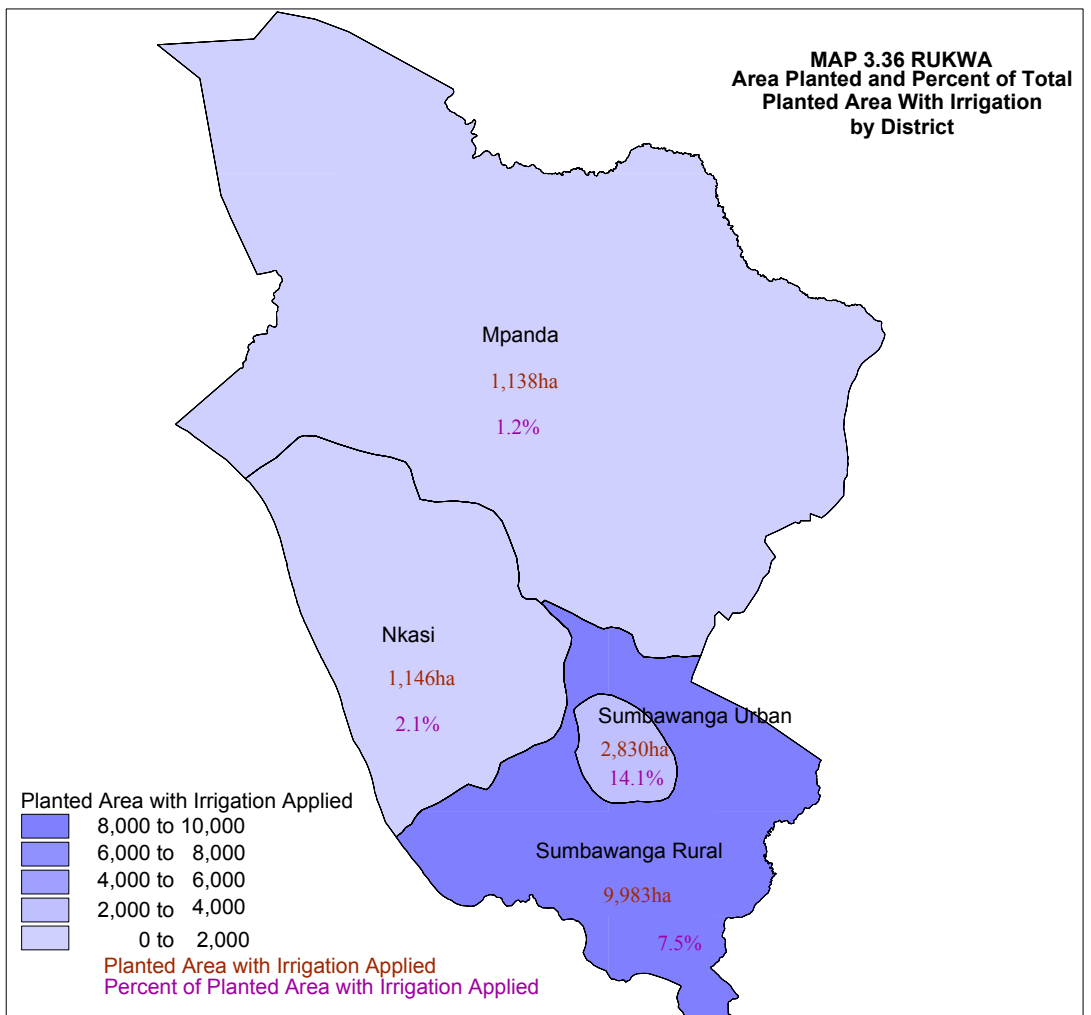
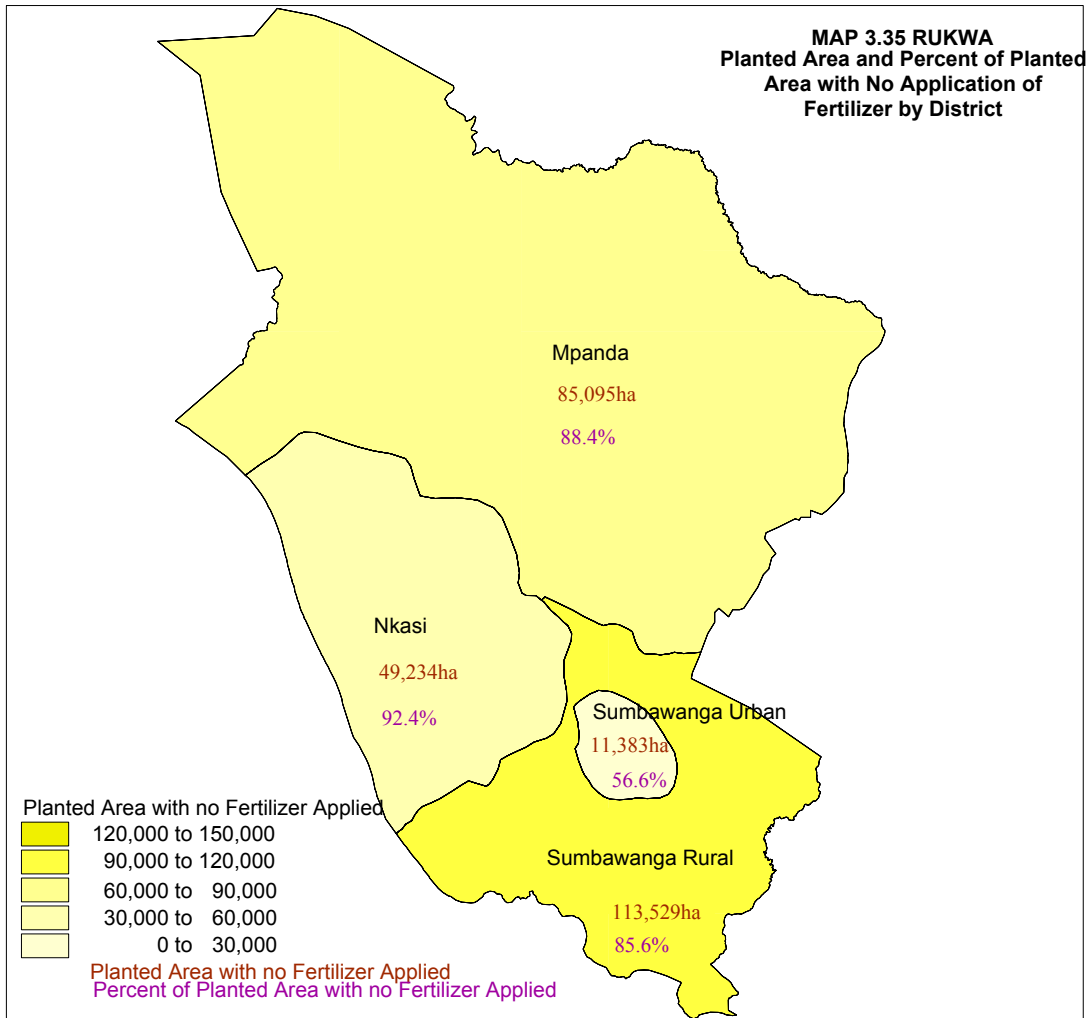
on their annual crops during the wet season was 8,412 Cereals had the largest area applied with inorganic fertilizers was on cereals (69.5% of the total area applied with inorganic fertilizers), followed by cash crops (25%), pulses (4.2%), oil seeds (0.8%), roots and tubers (0.3%) and fruit and vegetables (0.2%) (Chart 3.66). However, the proportion of



planted area applied with inorganic fertilizers was highest for fruits and vegetables at 12.7 percent followed by roots and tubers (1.1%), pulses (0.8%) and cereals (0.3%) (Chart 3.67a). Inorganic fertiliser is mostly used in Mpanda (8.3% of the total planted area in the district) followed by Sumbawanga Rural (2.9%), Nkasi (2.3%) and Sumbawanga Urban (1.4%) (Chart 3.67b).

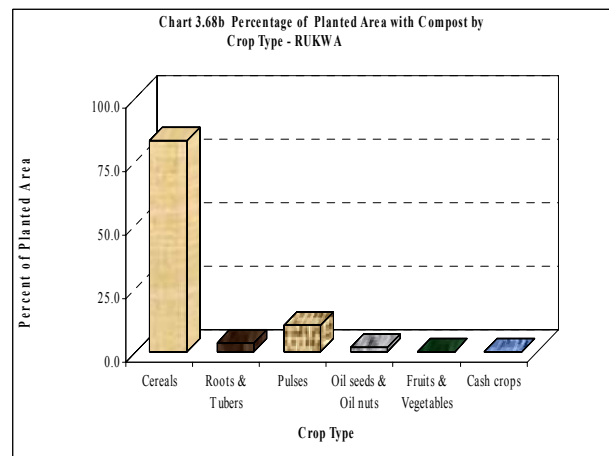
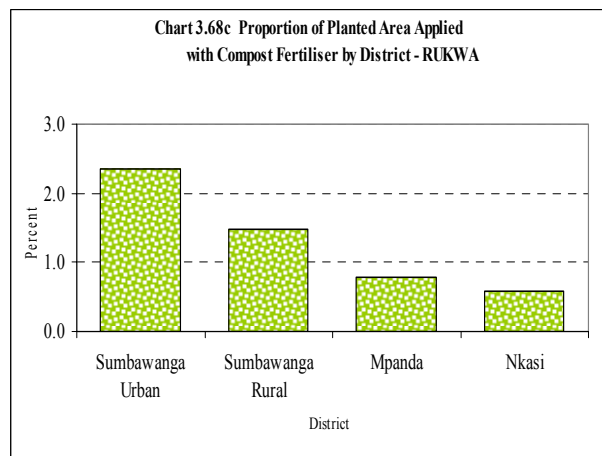
In permanent crops inorganic fertiliser were used on coconut (70%), sugarcane (25.6%), banana (6.8%) and guavas (1.9%).





3.5.4.3 Compost Use

The total planted area applied with compost was 3,518 hectares; this represents only 1.2 percent of the total planted area



with annual crops in the region and 8.3 percent of the total planted area with fertiliser in the region. The number of households that applied compost on their annual crops during the wet season was 3,131 which is equivalent to 1.8 percent of the total crop growing households in the region during the wet season (Table 3.9 and Chart 3.68a).

The proportion of area applied with compost was very low for each type of crop (0 to 8.3%); however the distribution of the total area using compost shows that 83 percent of this area was cultivated with cereals, followed by pulses (10.6%), roots & tubers (3.6%), oil seeds & oil nuts (1.9%) and fruits & vegetables (0.4%). No compost manure was applied on cash crops Chart 3.68a).

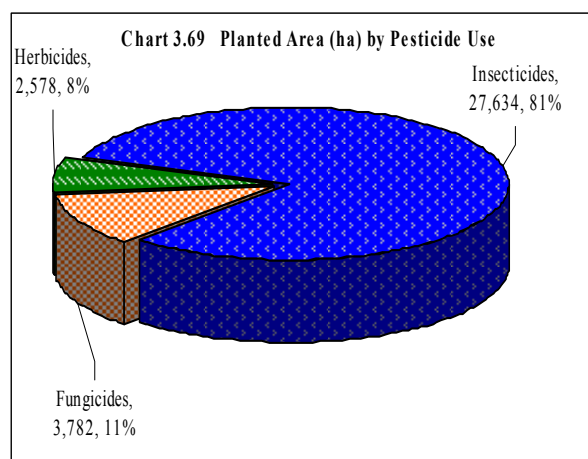
Compost was mostly used in Sumbawanga Urban (2.4% of the total planted area in the district), and this is closely followed by Sumbawanga Rural (1.5%), Mpanda (0.8%) and Nkasi (0.6%) (Chart 3.68b).

In permanent crops, compost was mostly used to sugarcane (100.0%)

3.5.5 Pesticide Use

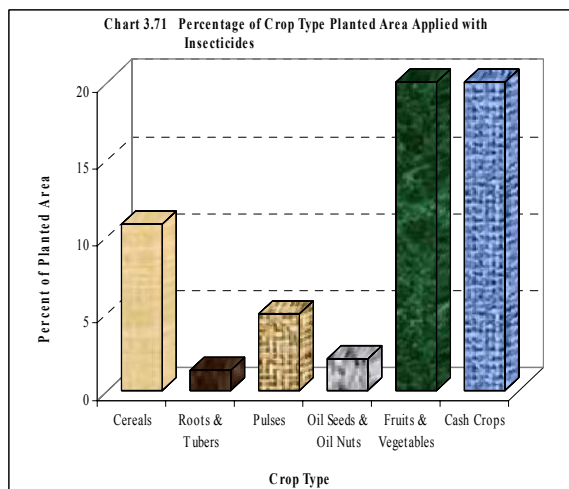
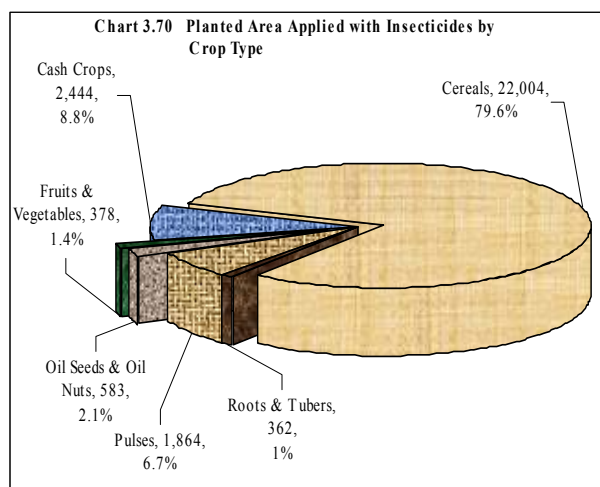
Pesticides are chemicals used for controlling insects, diseases and weeds. This section analyses the use of these chemicals by smallholders on both annual and permanent crops in the region. Pesticides were applied to a planted area of 25,121 ha of annual crops and vegetables.

Insecticides are the most common pesticide used in the region (81% of the total area applied with pesticides). This was followed by fungicides (11%) and herbicides (8%) (Chart 3.69).

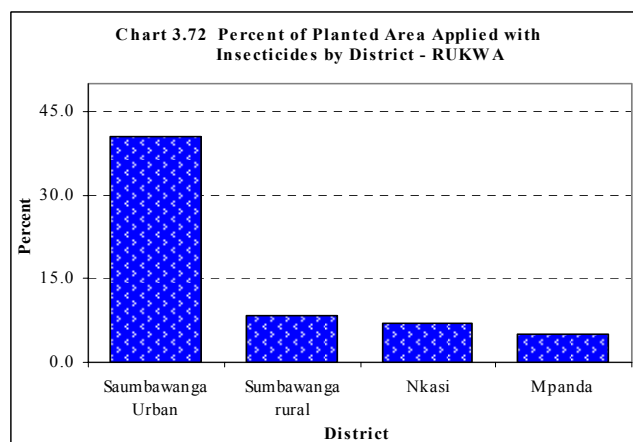


3.5.5.1 Insecticide Use

The planted area applied with insecticides during the wet season was estimated at 27,634 hectares which represented 9.1 percent of the total planted area for annual crops and vegetables.

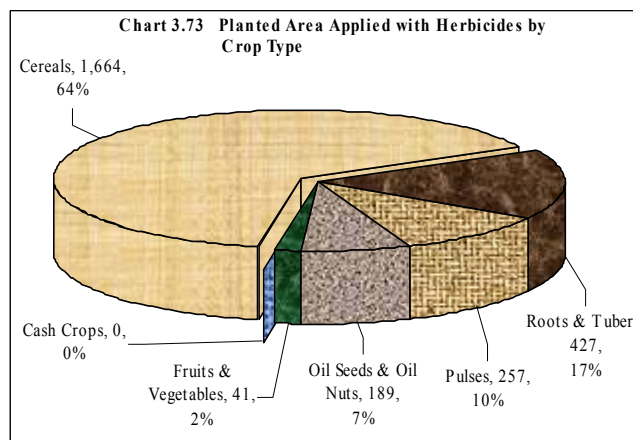


Cereals had the largest planted area applied with insecticides (22,004 ha, 79.6% of the total planted area with insecticides) followed by cash crops (2,444 ha, 8.8%), pulses (1,864 ha, 6.7%), oil seed (583 ha, 2.1%) fruit and vegetables (378 ha, 1.4%) and roots and tubers (362 ha, 1.3%) (Chart 3.70). However, the proportion of area applied with insecticides was highest for cash crops and fruits and vegetables being (74 and 31% respectively, while in cereals the proportion was (11%), pulses (5%), oil seeds 2%) and roots and tubers (1%) (Chart 3.71).



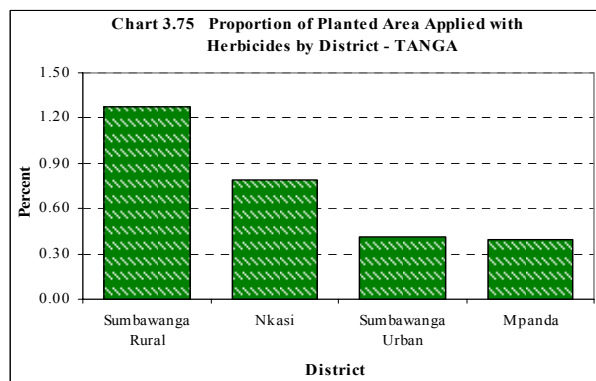
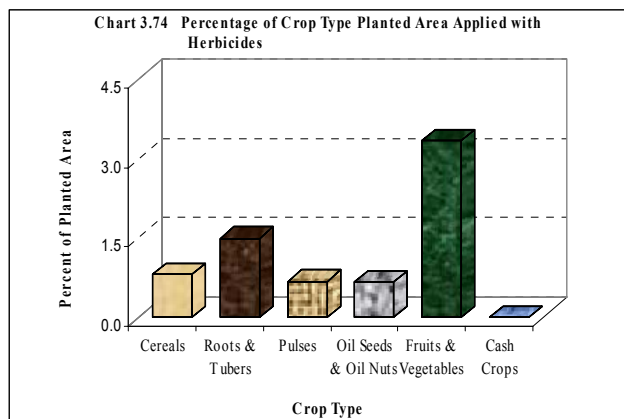
The annual crops with more than 50 percent insecticide use was maize (76.9%). The remaining annual crops used insecticides on less than 50 percent of the planted area

Sumbawanga Urban had the highest percent of planted area with insecticides (40.4% of the total planted area with annual crops in the district). This was far followed by Sumbawanga Rural (8.3%), Nkasi (6.9%) and Mpanda (5.0%) (Chart 3.72).



3.5.5.2 Herbicide Use

The planted area applied with herbicides was 2,578 hectares which represented 0.85 percent of the total planted area annual crops and vegetables. Cereals had the largest planted area applied with herbicides (1,664 ha, 64.6%) followed by roots & tubers (427 ha, 16.6%), pulses (257 ha, 10.0%) oil seeds & oil nuts (189 ha, 7.3%) and fruits & vegetables (41 ha, 1.6%). No herbicides were applied on cash crops (Chart 3.73).

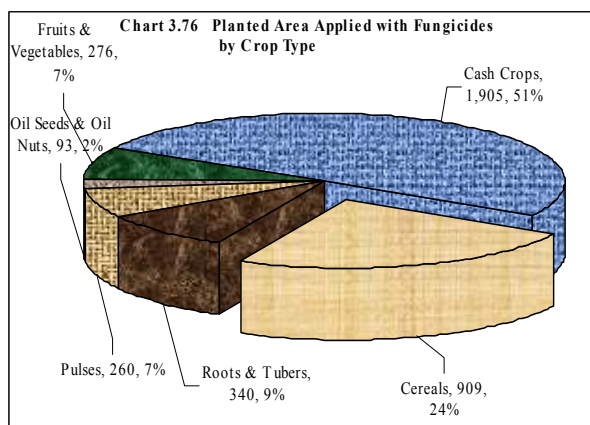


However, the proportion of planted area applied with herbicides was highest for fruits and vegetables and roots and tubers being (3.3% and 1.5% respectively). The proportion of cereals (0.8%) and for oil seeds and oil nuts it was (0.7%) (Chart 3.74). The top six annual crops with highest percentage use of herbicides in terms of planted area were maize (55%), cassava (16.6%), beans (10%), sunflower (6.5%), sorghum (3.6%) and groundnuts (0.9%).

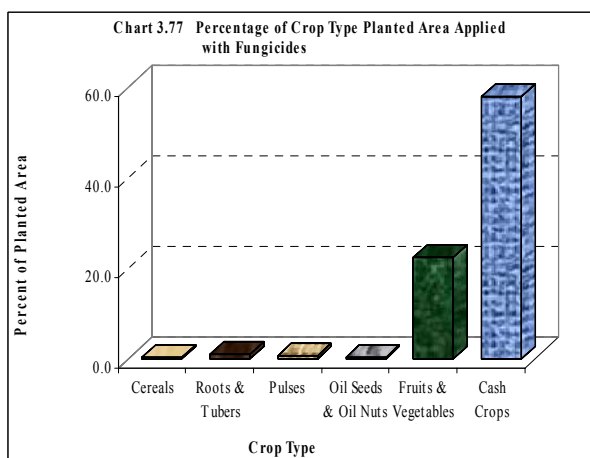
Sumbawanga Rural had the highest percent of planted area applied with herbicides (1.3% of the total planted area with annual crops in the district). It was followed by Nkasi (0.8%) then Sumbawanga Urban and Mpanda had (0.4%) each (Chart 3.75).

3.5.5.3 Fungicide Use

The planted area applied with fungicides was 3,782 hectares which represented 1.3 percent of the total planted area for annual crops and vegetables. Cash crops had the largest planted area applied with fungicides (1,905ha, 50.4%) followed by cereals (909 ha, 24.0%), roots and tubers (340 ha, 9.0%), fruits and vegetables (276 ha, 7.3%), pulses (260 ha, 6.9%) and oil seeds (93 ha, 2.5%) (Chart 3.76).

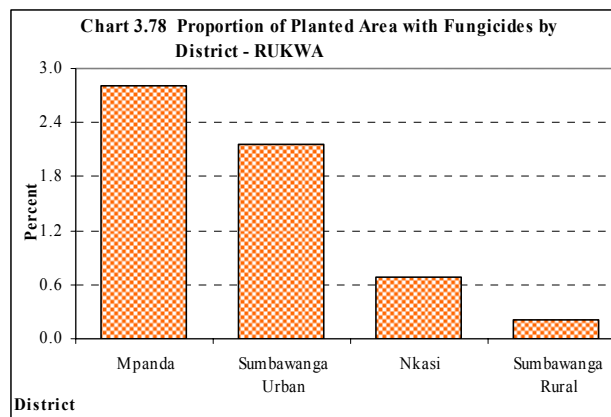


However, the proportion of planted area applied with fungicides was highest for cash crops and fruits and vegetables being 57.8% and 22.5% respectively. The proportion for roots and tubers was (1.2%), pulses (0.7%), cereals (0.4%) and oil seeds (0.3%). (Chart 3.77).



The annual crop with more than 40 percent fungicide use was tobacco (59%). Tomatoes had (34.4%), cassava (1.3%), beans (0.7%), maize (0.6%) and groundnuts (0.4%).

Mpanda had the highest percent of planted area with fungicides (2.8% of the total planted area with annual crops in the district). This was followed by Sumbawanga Urban (2.2%). The smallest percentage use was recorded in Sumbawanga Rural and Nkasi districts being (0.2% and 0.7% respectively) (Chart 3.78).



3.5.6 Harvesting Methods

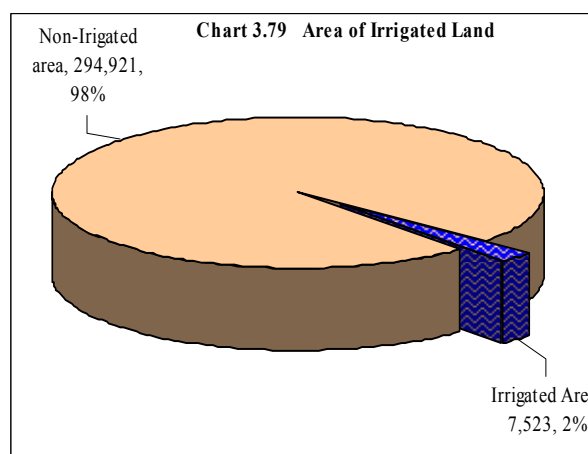
The main harvesting method for cereals was reported to be by hand. Very small amounts of maize were harvested by machine (0.2%) All other cereals and annual crops were harvested by hand.

3.5.7 Threshing Methods

Hand threshing was the most common method used, with 89 percent of the total area planted with cereals during the long rainy season being threshed by hand. Draft animals, human powered tools and engine driven machines were only used on crops harvested from 0.1%, 0.1 percent and 0.2 percent of the total planted area respectively.

3.6 Irrigation

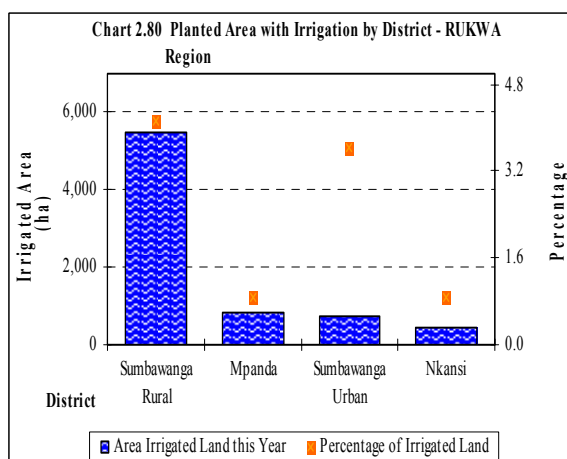
Water is the limiting factor to crop production in the majority of areas in Tanzania and without water most other agricultural practices applied to crops do not result in significant increases in yields. This section deals with the area under irrigation for different crops and the means by which water was extracted from the source and applied to the field.



3.6.1 Area Planted with Annual Crops and Under Irrigation

In Rukwa region, the area of annual crops under irrigation was (7,523 ha) representing 2 percent of the total area planted (Chart 3.79). Some cereal crops such as maize and paddy were predominantly irrigated

The district with the largest planted area under irrigation for annual crops was Sumbawanga Rural (5,487 ha, 73% of the total irrigated planted area with annual crops in the region). This was followed by Mpanda (844 ha, 11%), Sumbawanga Urban (730 ha, 10%) and Nkasi (462 ha, 6%).



When expressed as a percentage of the total area planted in each district Sumbawanga Rural had the largest area under irrigation at (4.1%). This was followed by Sumbawanga Urban (3.6%). Mpanda and Nkasi districts had (0.9%) each (Chart 3.80 and Map 3.40).

Of all the different crops and in terms of proportion of the irrigated planted area, paddy was the most irrigated crop with 35 percent irrigation followed by maize (28%), cassava (17%), beans (5%) and tomatoes (2%).

In terms of crop type, the area under irrigation for cereals was 10,470 hectares (69.4% of the total area under irrigation), followed by roots and tubers with 2,782 hectares (18.4%), pulses (754 ha, 5%), fruits and vegetables (601 ha, 4%), cash crops (273 ha, 1.8%) and oil seeds (218 ha, 1.4%). All of the irrigation for cereals was applied to paddy and maize

The number of agricultural households practicing irrigation in Rukwa region appears to have decreased by (26.8%) from 8,958 agricultural households in 1995/96 to 6,561 agricultural households in 2002/03. This may not be statically significant due to the small number of households sampled with irrigation (Chart 3.81)

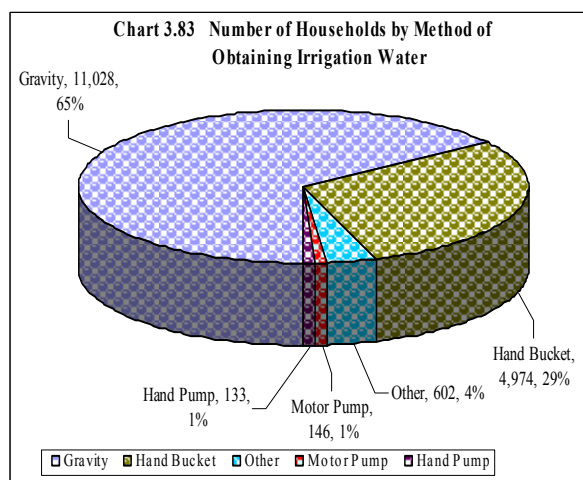
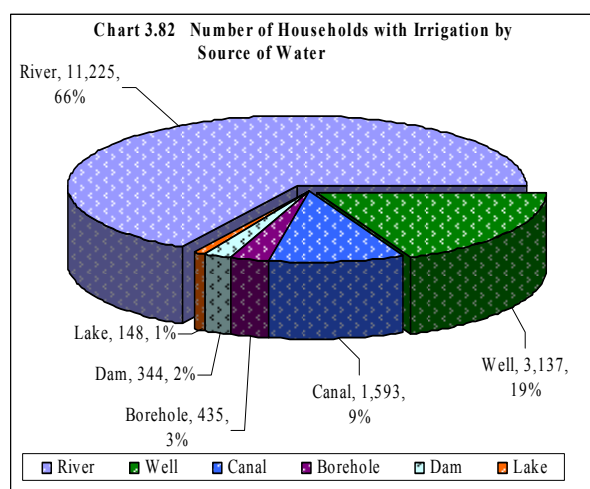
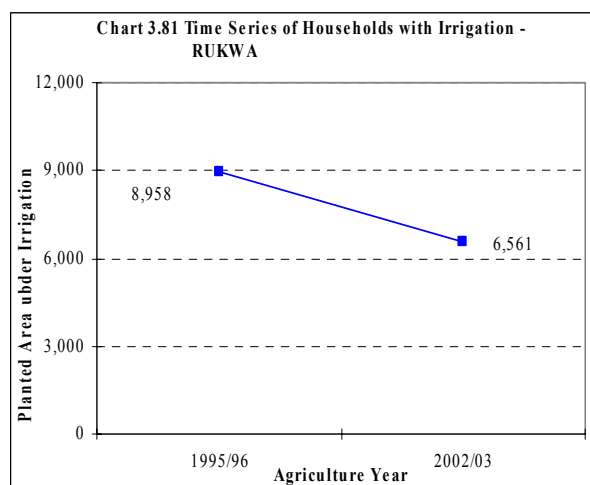
3.6.2 Sources of Water Used for Irrigation

The main source of water used for irrigation was from rivers (66% of households with irrigation). This was followed by wells (19%), canal (9%), boreholes (3%), dams (2%) and lake (1%).

3.6.3 Methods of Obtaining Water for Irrigation

Gravity was the most common means of getting water for irrigation with 65 percent of households using this method. This was far followed by hand bucket with 29 percent of households. The remaining methods (hand pump, motor pump and others) were of minor importance (Chart 3.76).

Gravity was used by most households with irrigation in Sumbawanga Rural (66%), followed by Sumbawanga Urban

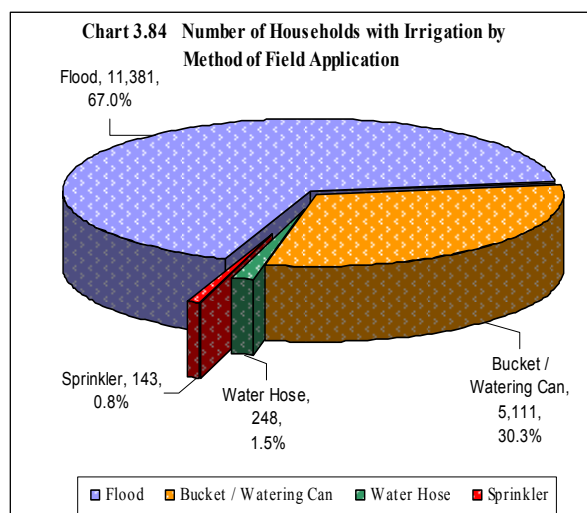


(13%), Mpanda (11%) and Nkasi (10%). Hand bucket was more common in Mpanda with 40 percent of households using the method to obtain water for irrigation, followed by Sumbawanga Urban (26), Sumbawanga Rural (23%) and Nkasi (11%).

While the method of obtaining irrigation water by hand pumps was the most common method in Mpanda district, motor pump was the most common method of obtaining irrigation water in Nkasi and Sumbawanga Urban.

3.6.4 Methods of Water Application

Most households used flooding (67.4% of households using irrigation) as a method of field application. This was followed by hand bucket/watering can (30.3%). Water hose and sprinklers were not widely used as they were 1.5% and 0.8% of the households respectively.



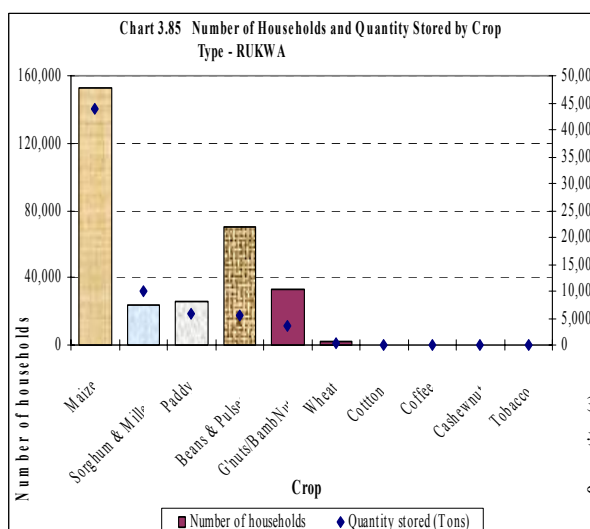
3.7 Crop Storage, Processing and Marketing

3.7.1 Crop Storage

Crop storage means keeping a crop for a certain period of time as food for the household, in order to sell at higher prices or as seed for planting in the following season.

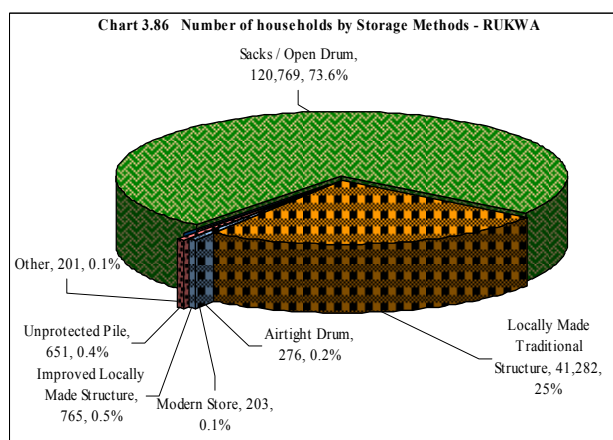
The results for Rukwa region show that there were 164,147 crop growing households (95.3% of the total crop growing households) that stored various agricultural products in the region.

The most important stored crop was maize with 152,974 households storing 43,758 tonnes as of 1st January 2004. This was followed by sorghum/millet (24,085 households, 9,873 tons), paddy (26,058 households, 5,923t), beans/pulses (70,698 households, 5,339t) and groundnuts/bambaranuts (32,955 households, 3,463t). Other crops were stored in very small amounts.

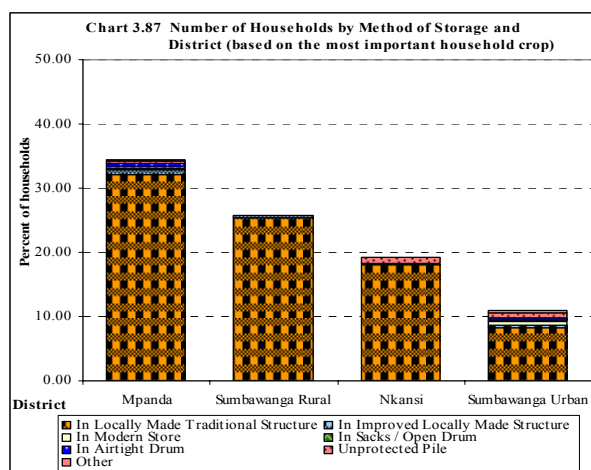


3.7.1.1 Methods of Storage

The region had 120,769 crop growing households storing their produce in sacks/open drums (73.6% of households that stored crops in the region). The number of households that stored their produce in locally made traditional cribs was 41,282 (25.1%). This was followed by those that stored their produce in improved locally made cribs (765 households, 0.5%), unprotected piles (651 households, 0.4%), air tight drums (276 households, 0.2%), modern store (203 households 0.1%) and other (201 households, 0.1%).



Sacks/open drums were the dominant storage method in all districts, with the highest percent of households in Sumbawanga Urban using this method (89% of the total number of households storing crop products). This is followed by Nkasi (81%), Sumbawanga Rural (74%) and Mpanda (66%) (Chart 3.80).

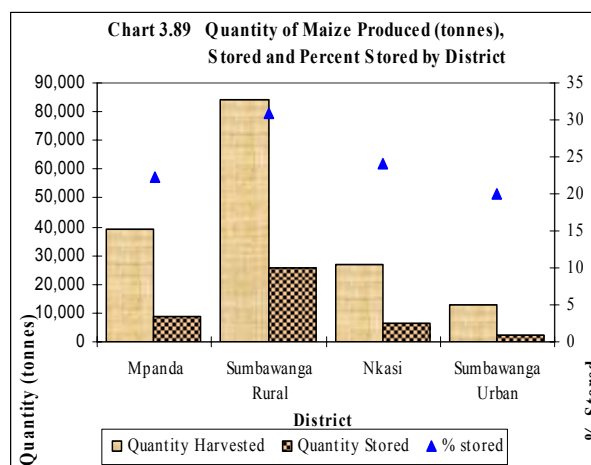
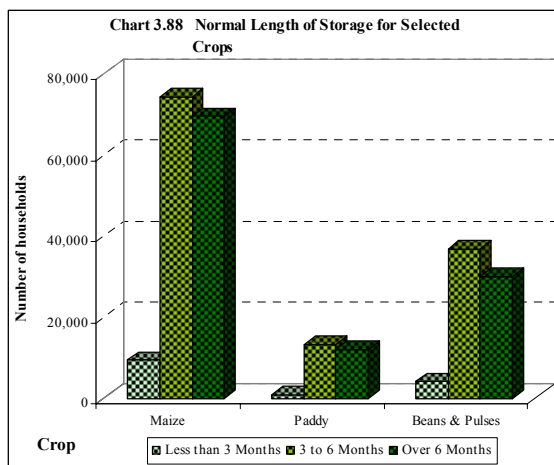


The highest percent of households using locally made structures were in Mpanda and Sumbawanga Rural districts

(32% and 25% of the total number of households storing crops respectively), followed by Nkasi (18.9%) and Sumbawanga Urban (8%)

3.7.1.2 Duration of Storage

Most households (49.3% of the households storing crops) stored their produce for a period of 3 to 6 months followed by those who stored for a period of over 6 months (45.6%) and those households who stored the crop for the period of less than 3 months were (5.1%) (Chart 3.88)



The proportion of households that stored their produce for the duration of 3 to 6 months was highest in Mpanda district (58%) followed by Nkasi (49%), Sumbawanga Urban (46.2%) and Sumbawanga Rural (41.5%) (Map 3.41).

District comparison of duration of storage cannot be done for all crops combined. However, the analysis has been done for maize as it is the most commonly stored crop. In general, quantity stored was related to the quantity produced. Districts with greater production had a higher percent of their crop stored as on 1st October 2003 (Chart 3.89). However, households in Sumbawanga Urban district stored relatively little maize in comparison to the quantity produced indicating that the quantity stored was probably determined by the food and seed requirement of the household and not to sell during the “off-season” when the farm gate price of maize is higher.

3.7.1.3 Purposes of Storage

Subsistence food crops (maize, paddy, sorghum and millet, beans and pulses) are mainly stored for household consumption. The percent of households that stored maize for household consumption as the main purpose of storage was 88.6 percent followed by seed for planting. Practically all stored annual cash crops were stored for selling at higher price (Chart 3.10).

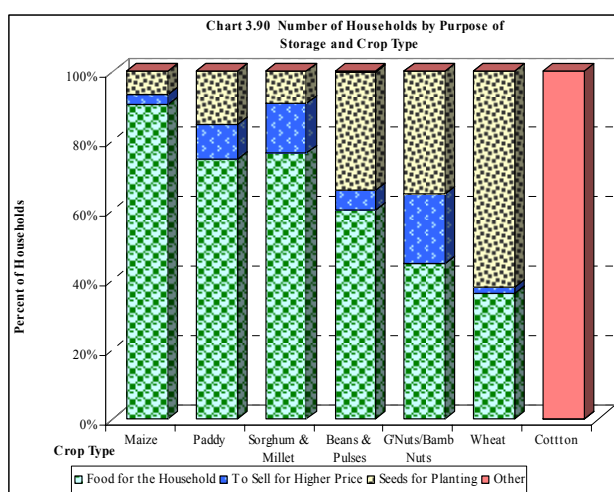
3.7.1.4 The Magnitude of Storage Loss

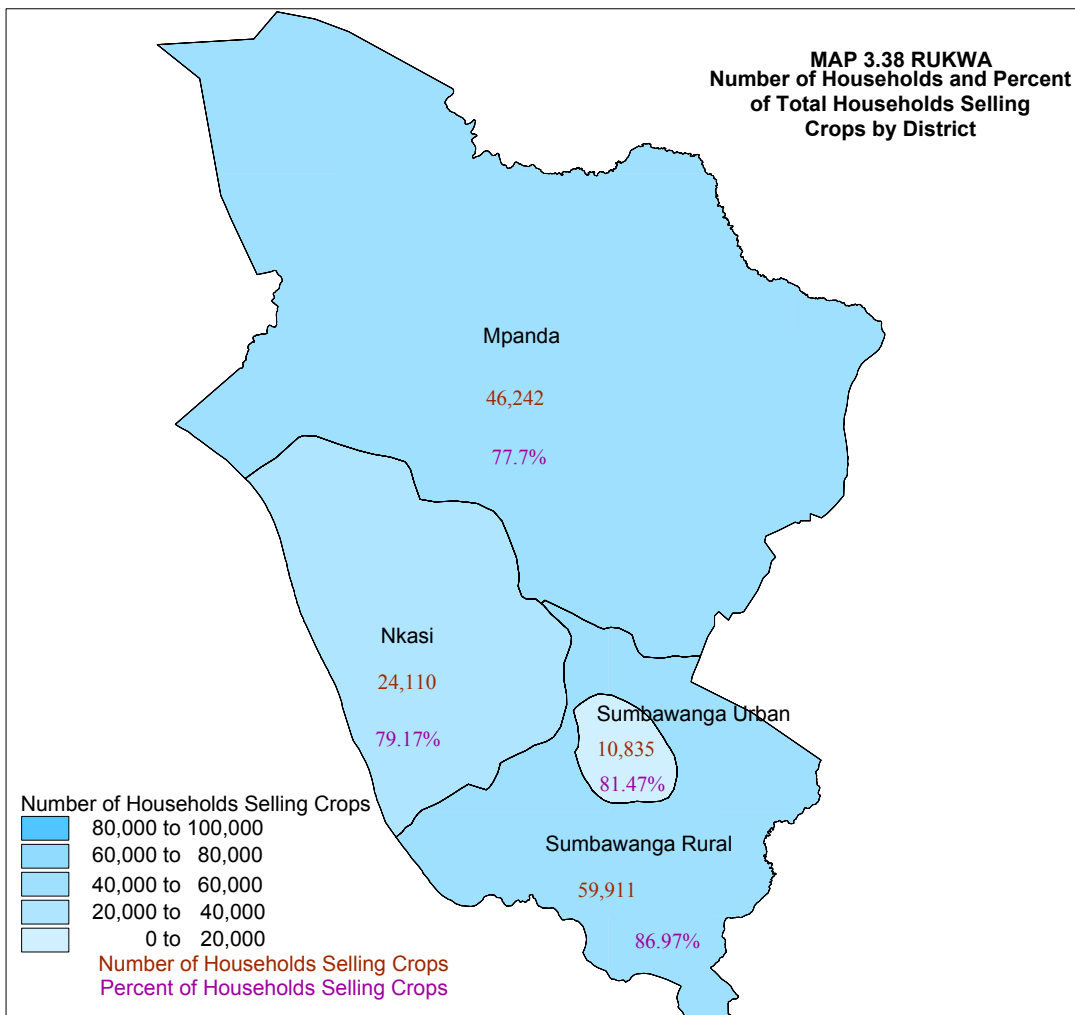
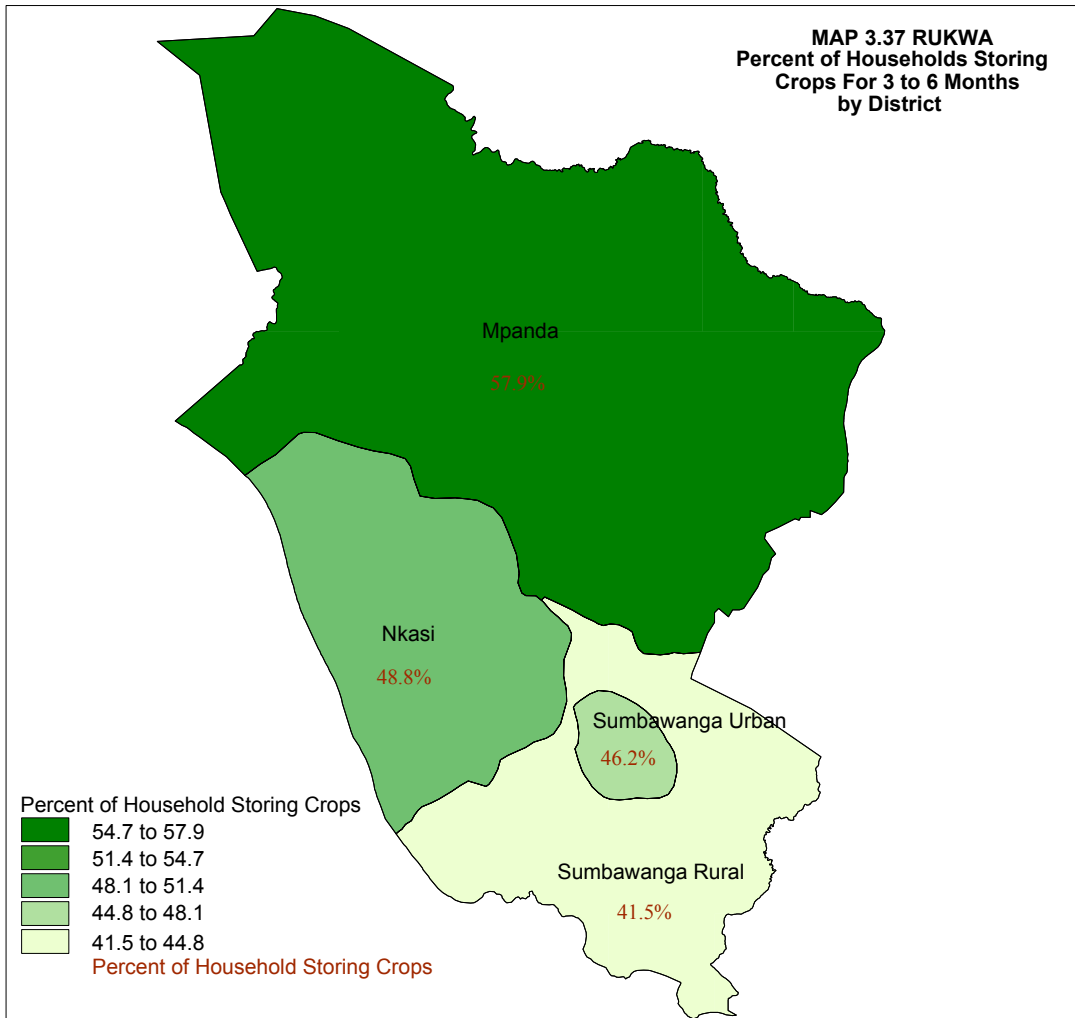
About 86.4 percent of households that stored crops had little or no loss; however the proportion of households that experienced a loss up to a quarter was 11.1 percent. (Table 3.10)

The proportion of households that reported a loss of more than a quarter was greatest for sorghum and millet (9.3% of the total number of households that stored crops). This was followed by maize (9.1%), groundnuts and bambaranut (5.4%), beans and pulses (2.9%) and paddy (1.1%). All households that stored cash crops such as seaweed, cloves, cashew nut and tobacco had no loss. Most households storing groundnuts and bambara nuts had little or no storage loss (94%)

3.10: Number of Households Storing Crops By Estimated Storage Loss and District

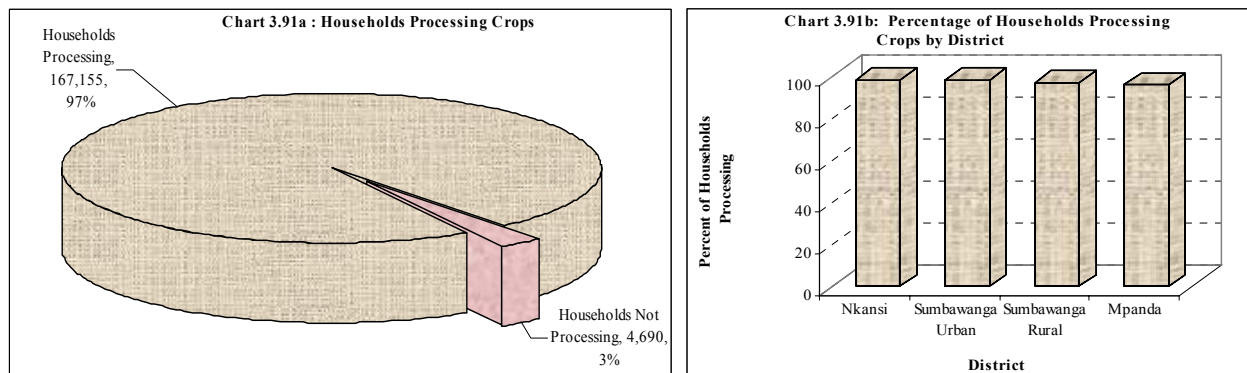
District	Estimate Storage Loss				Total
	Little or no Loss	Up to 1/4 Loss	Between 1/4 and 1/2 Loss	Over 1/2 Loss	
Mpanda	54,498	3,163	402	269	58,332
Sumbawanga Rural	53,339	9,491	1,168	712	64,708
Nkasi	23,714	3,746	709	78	28,247
Sumbawanga Urban	10,228	1,885	577	169	12,859
Total	141,778	18,285	2,856	1,228	164,147





3.7.2 Agro processing and By-products

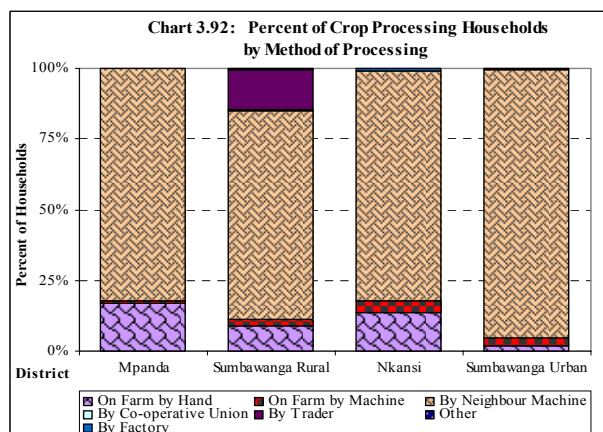
Agro processing refers to a process that converts a crop product from one form to another form in order to add value or increase the palatability of the product. Agro-processing was practiced in most crop growing households in Rukwa region (167,155 households, 97% of the total crop growing households) (Chart 3.91a).



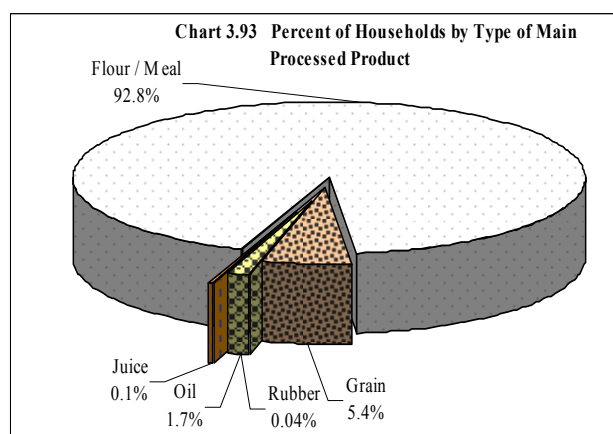
The percent of households processing crops was very high in most districts (above 80%). Mpanda and Sumbawanga Rural had the lowest percent of households processing crops (96% and 97% of crop growing households respectively) (Chart 3.91b).

3.7.2.1 Processing Methods

Most crop processing households (133,195 households) processed their crops using neighbour’s machines, this representing 80 percent. This was followed by those processing on-farm by hand (20,209 households, 12.1%), trader (9,585 households, 5.2%) and on-farm by machine (3,397 households, 2%). The remaining methods of processing were used by very few households (less than 1%).



Although processing by machine was the most common processing method in all districts in Rukwa region, however district differences existed. Mpanda has a higher percent of hand processing than other districts (17%), followed by Nkasi (14%), Sumbawanga Rural (9%) and Sumbawanga Urban (2%). Processing by trader was more common in Sumbawanga Rural and Sumbawanga Urban (14.3% and 0.3% respectively), whilst processing on farm by machine was more prevalent in all four districts of Nkasi, Sumbawanga Urban, Sumbawanga rural and Mpanda (Chart 3.92).

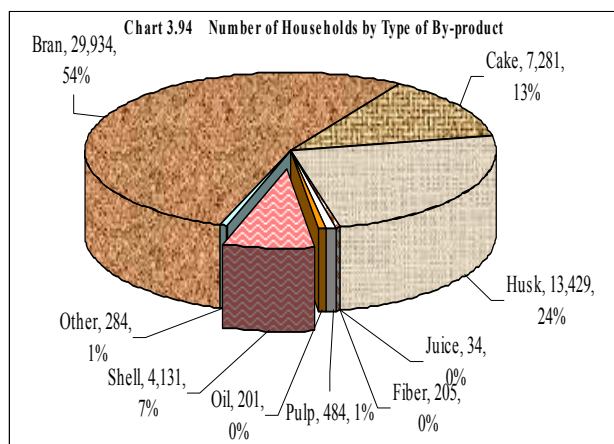


3.7.2.2 Main Agro-processing Products

Two types of products can be produced from agro-processing namely, the main product and the by-product. The main product is the major product after processing and the by-product is secondary after processing. For example the main product after processing maize is normally flour whilst the by-product is normally the bran.

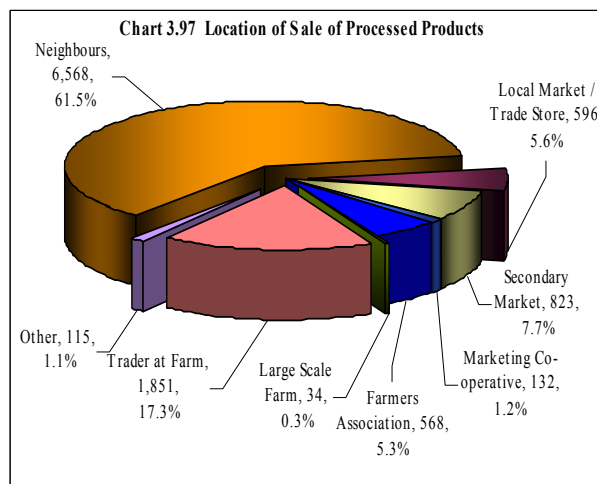
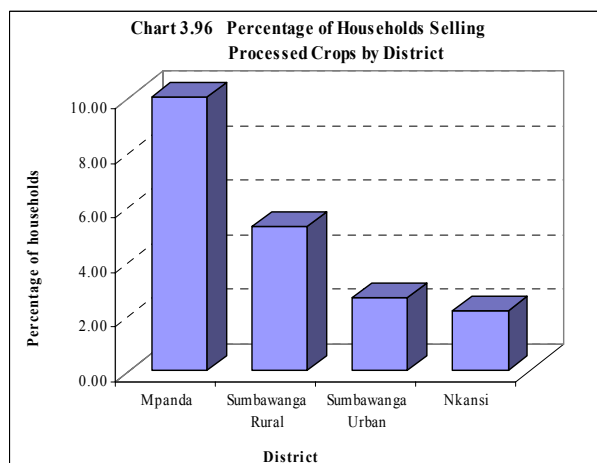
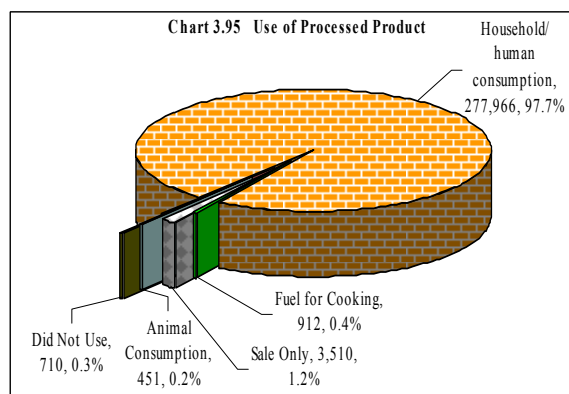
The main processed product was flour/meal with 155,071 households processing crops into flour (92.8%) followed by grain with 9,077 households (5.4%) and oil 2,751 households (1.7%). The remaining products such as juice and rubber were produced by a small number of households (Chart 3.93).

The number of households producing by-products accounted for 33.6 percent of the households processing crops. The most common by-product produced by crop processing households was bran with 29,934 households (53.5%) followed by Husks (13,429 households, 23.9%), cake (7,281 households, 13%) and shell (4,131 households, 7.4%). The remaining by-products were produced by a small number of households (Chart 3.94).



3.7.2.3 Main Use of Primary Processed Products

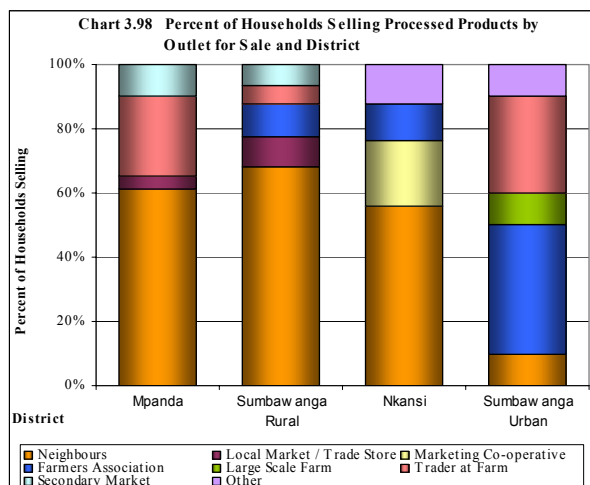
Primary processed products were used for households or human consumption, fuel for cooking, for selling and for animal consumption. The most important use was for household/human consumption which represented 98 percent of the total households that used primary processed product (Chart 3.95). Mpanda and Sumbawanga Rural were the only districts that used primary products as fuel for cooking.



Out of 10,687 households that sold processed products, 6,158 were from Mpanda (57.6% of the total number of households selling processed products in the region), followed by Sumbawanga Rural with 3,529 households (33%), Nkasi with 654 households (6.1%) and Sumbawanga Urban with 345 households (3.2%) (Chart 3.96). Compared to other districts in Rukwa region, Mpanga had the highest percent of households (10.8%) that sold processed products. This is followed by Sumbawanga Rural (5.3%), Sumbawanga Urban (2.6%), and Nkasi (2.2%).

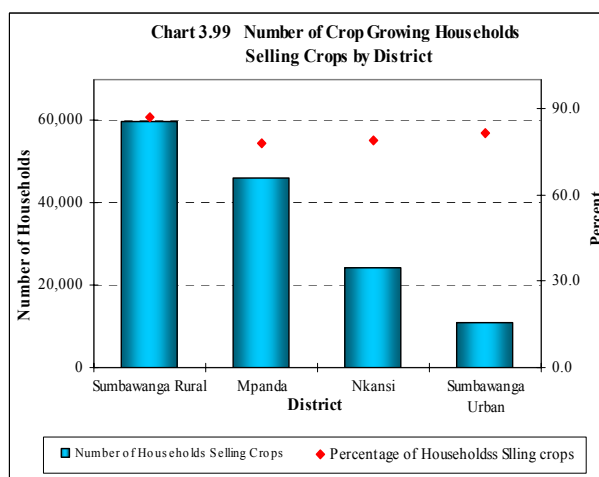
3.7.2.4 Outlets for Sale of Processed Products

Most households that sold processed products sold them to neighbours (7,582 households, 35%), local market and trade stores (6,568 households, 61.5% of households that sold crops). This was followed by selling to trader at farm (1,851 households, 17.3%), secondary market (823 households, 7.7%), local market trade store (596 households, 5.6%), farm associations (568 households (5.3%), marketing co-operatives (132 households, 1.2%), other (115 households, 1.1%) and large scale farms (34 households, 0.3%) and other places (115 households, 1.1%)(Chart 3.97).



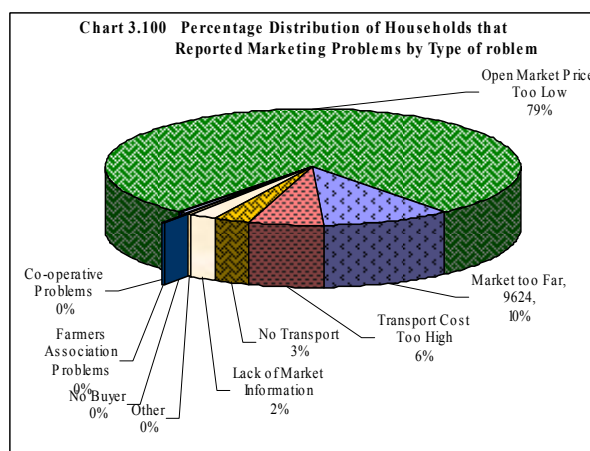
There are large differences between districts in the proportion of households selling processed products to neighbours with Mpanda district having the largest percentage (57.4%) and Sumbawanga Urban having the lowest (0.5%).

Compared to other districts, Sumbawanga Rural had the highest percent of households selling processed products to traders at farm. Both Sumbawanga Rural and Urban districts sold processed produce to farmer associations most. The district which had the highest proportion of households selling processed products to marketing cooperative was Nkasi.



3.7.3 Crop Marketing

The number of households that reported selling crops was 141,097 which represent 81.9 percent of the total number of crop growing households. The percent of crop growing households selling crops was highest in Sumbawanga Rural (42%) followed by Mpanda (33%), Nkasi (17.1%) and Sumbawanga Urban (8%) (Chart 3.99 and Map 3.42)



3.7.3.1 Main Marketing Problems

Open market price too low for agricultural produce was the main marketing problem reported by most households (78.1% of crop growing households) followed by longer distances to the markets (10.1%), high transport costs (5.7%), lack of transport (5.7%), lack of market information (2.1%) and other marketing problems are minor and represented less than 1 percent of the total reported problems.

3.7.3.2 Reasons for Not Selling Crops

The main reason for not selling crops was reported as “insufficient production to sell” which accounted for 90 percent of the smallholders. The remaining reasons for not selling are in such low numbers that it is not appropriate to rank their importance (Table 3.12). This general trend applies to all districts in Rukwa region.

Table 3.12 Reasons for Not Selling Crop Produce

	Number of Household	%
Production Insufficient to Sell	96,997	90.0
Price Too Low	6,450	6.0
Other	2,652	2.5
Market Too Far	992	0.9
Trade Union Problems	303	0.3
Government Regulatory Board Problems	198	0.2
Farmers Association Problems	134	0.1
Total	107,725	100

3.8 Access to Crop Production Services

3.8.1 Access to Agricultural Credit

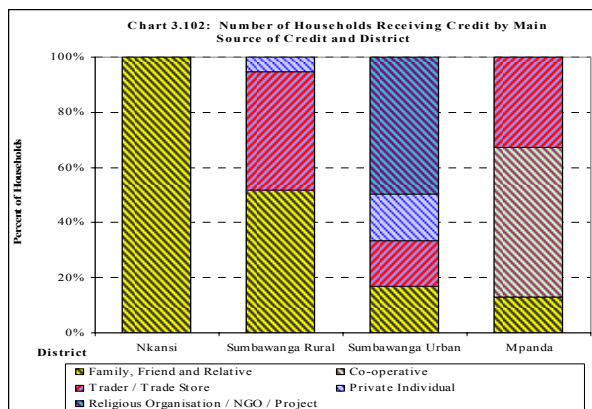
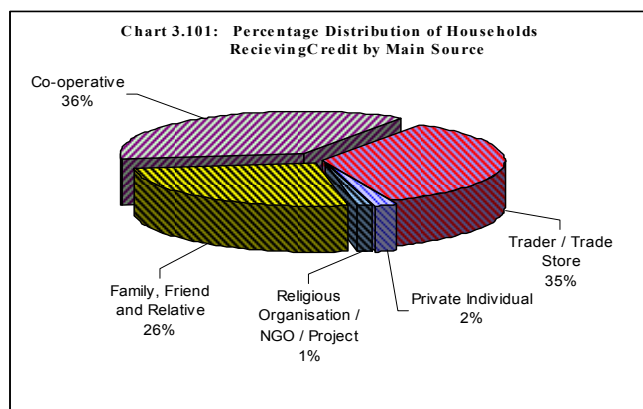
The census result shows that in Rukwa region very few agricultural households (7,365, 4.3%) accessed credit out of which 6,833 (93%) were male-headed households and 533 (7%) were female-headed households. In Nkasi district only female-headed households got agricultural credit whereas in Mpanda, Sumbawanga Rural and Sumbawanga Urban districts both male and female headed households accessed credit. (Table 3.13).

Table 3.13 Number of Agricultural Households that Received Credit by Sex of Household Head and District

District	Male	%	Female	%	Total
	4,552	94	270	6	4,821
Sumbawanga Rural	2,146	95	116	5	2,261
Nkansi	0	0	80	100	80
Sumbawanga Urban	135	67	67	33	202
Total	6,833	93	533	7	7,365

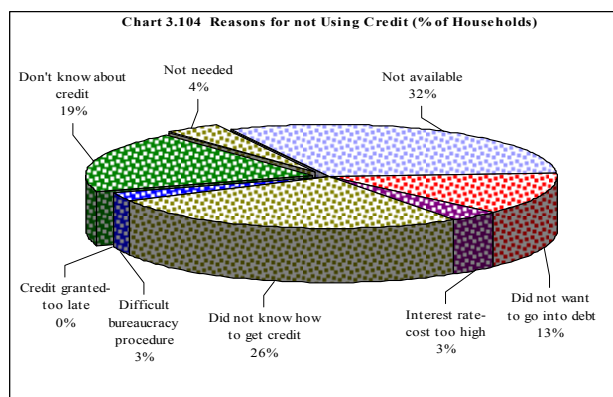
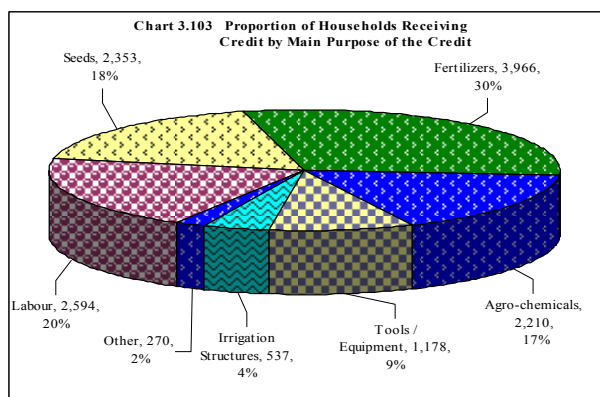
3.8.1.1 Source of Agricultural Credit

The major agricultural credit providers in Rukwa region were co-operatives 2,685 agricultural households (35.8% of the total number of households that accessed credit) this was followed by traders/trade stores (34.9%), family, friends and relatives (25.9%), private individuals (2.1%) and religious organization, NGO and projects (1.3%) (Chart 3.101). Co-operative and religious organization, NGO and projects were the sole source of agricultural credit in Mpanda and Sumbawanga Urban districts respectively. Family, Friends and Relatives provided agricultural credits in all four districts in the region (Chart 3.102).



3.8.1.2 Use of Agricultural Credit

A large proportion of the agricultural credit provided to agricultural households in the region were used on buying fertilizers (30%), this was followed by hiring labour (20%), buying seeds (18%) and agro-chemicals (17%). The proportion of agricultural credits intended to be used for buying tools/equipments, irrigation structures, and others was very low (Chart 3.103).

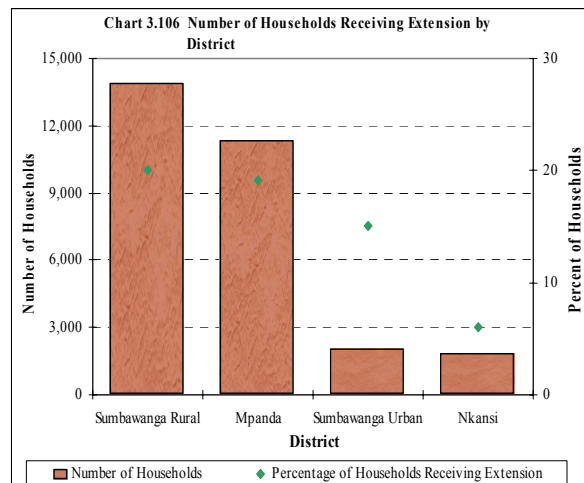
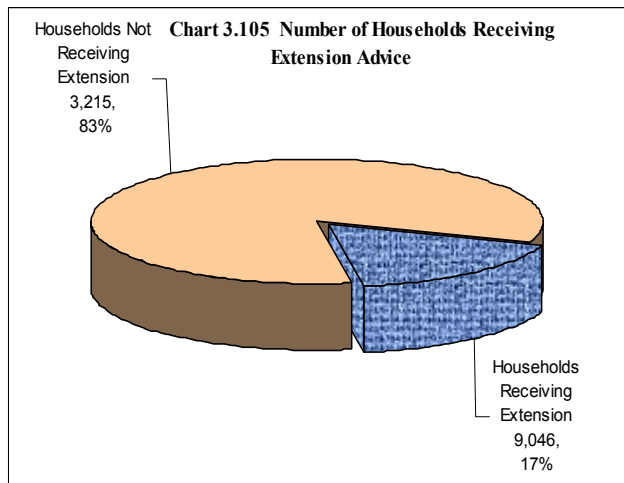


3.8.1.3 Reasons for Not Using Agricultural Credit

The main reason for not using agricultural credit as a source of finance was that, credits were not available accounting to 31 percent of the agricultural households. This was followed by households reporting the lack of credit awareness (27%), the knowledge of credit (19%). Also other households did not want to go into debts (13%). The rest of the reasons were collectively less than 8 percent of the households.

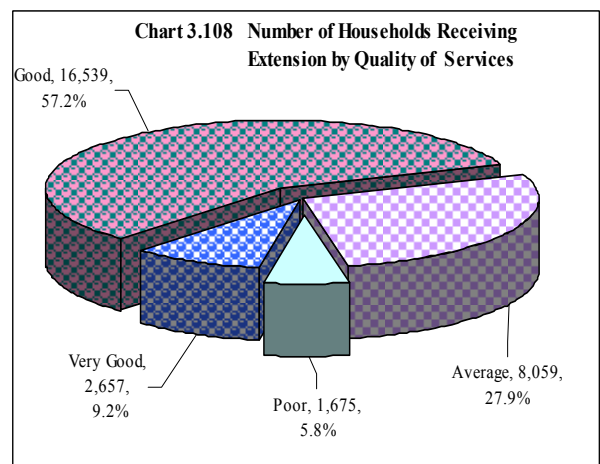
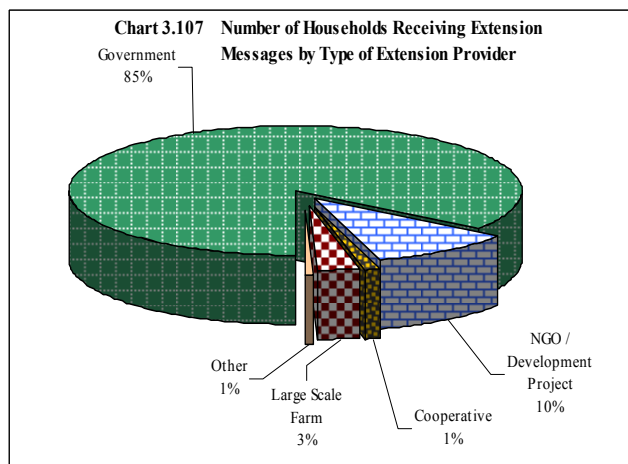
3.8.2 Crop Extension

The number of Agricultural households that received crop extension was 9,046 (17% of total crop growing households in the region) (Chart 3.105). Some districts had more access to extension services than others, with Sumbawanga Rural having a relatively high proportion of households (20%) that received crop extension messages in the district followed by Mpanda (19%), Sumbawanga Urban (15%) and Nkasi (6%) (Chart 3.106 and Map 4.43).



3.8.2.1 Sources of Crop Extension Messages

Of the households receiving extension advice the Government provided the greatest proportion (85%, 24,535 households). NGO/Development projects provided (10.3%), large scale farms (3%), co-operatives (1.1%). The remaining extension source of extension provided only (0.6%) (Chart 3.107). However, district differences exist with the proportion of the



households receiving extension advices from government services ranging from between 73 percent and 100 percent in Mpanda to 90 percent in Sumbawanga Urban.

3.8.2.2 Quality of Extension

An assessment of the quality of extension indicated that 57.2 percent of the households receiving extension ranked the service as being good followed by average (27.9 %), very good (9.2%) and poor (5.8%) (Chart 3.108). However, care should be exercised when making decisions on quality of extension and also other variables in the extension report as all the enumerators were extension agents and some degree of bias is expected.

3.9 Access to Inputs

Access to inputs in this section refers to all crop growing households in Tanzania regardless of whether the household grew annual or permanent crops. In previous sections the reference was to annual crops. Because of this, some of the figures presented in this section may be slightly different from those in previous section on insecticides inputs use (Section 3.5). Data on sources of inputs is only found in this section and it applies to both annual and permanent crops.

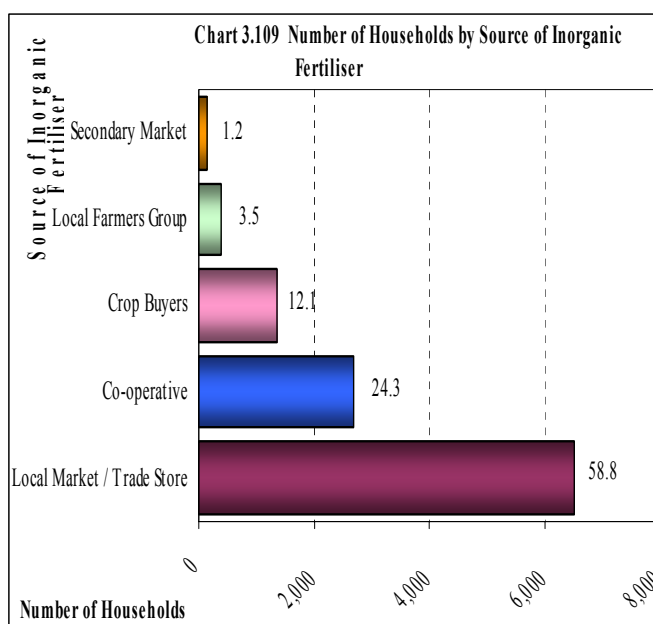
Table 2.13 Use of Inputs

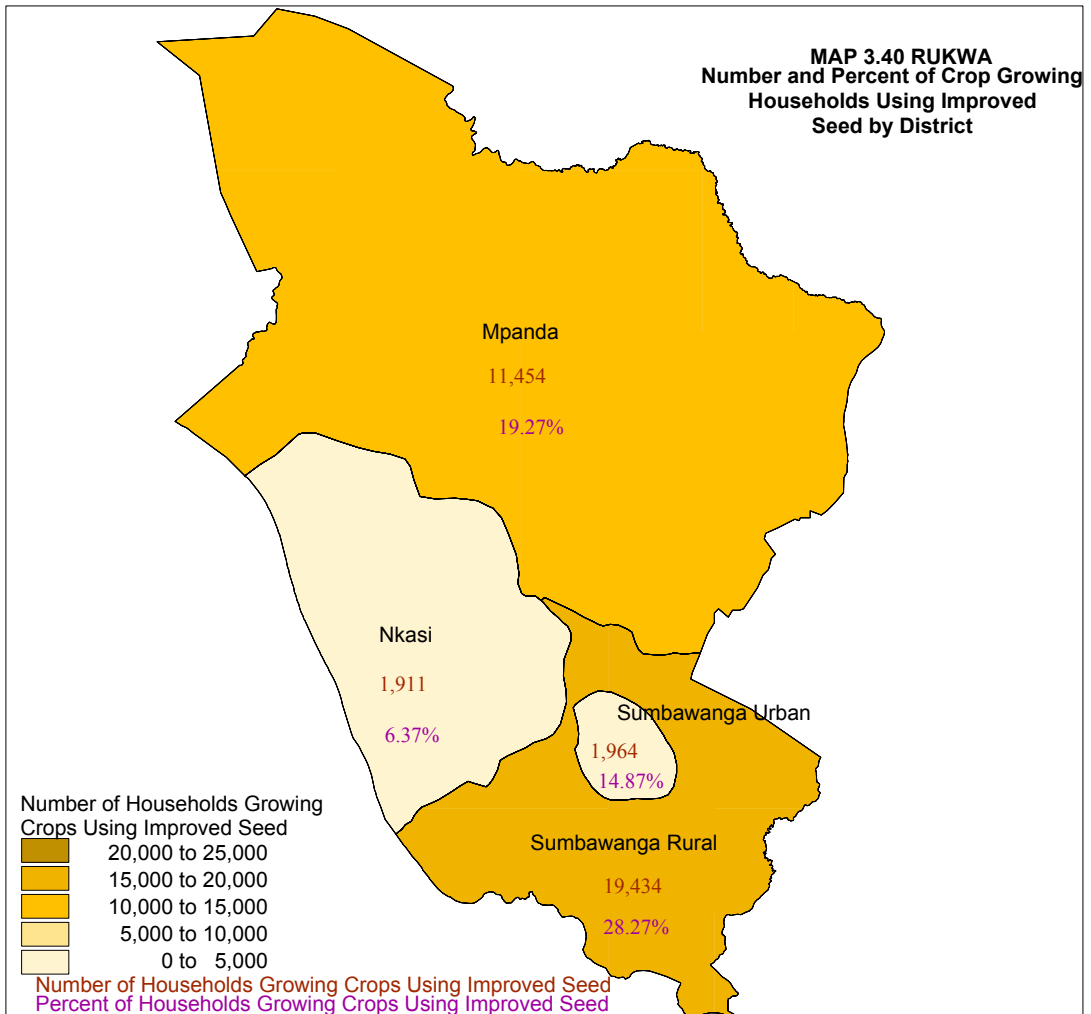
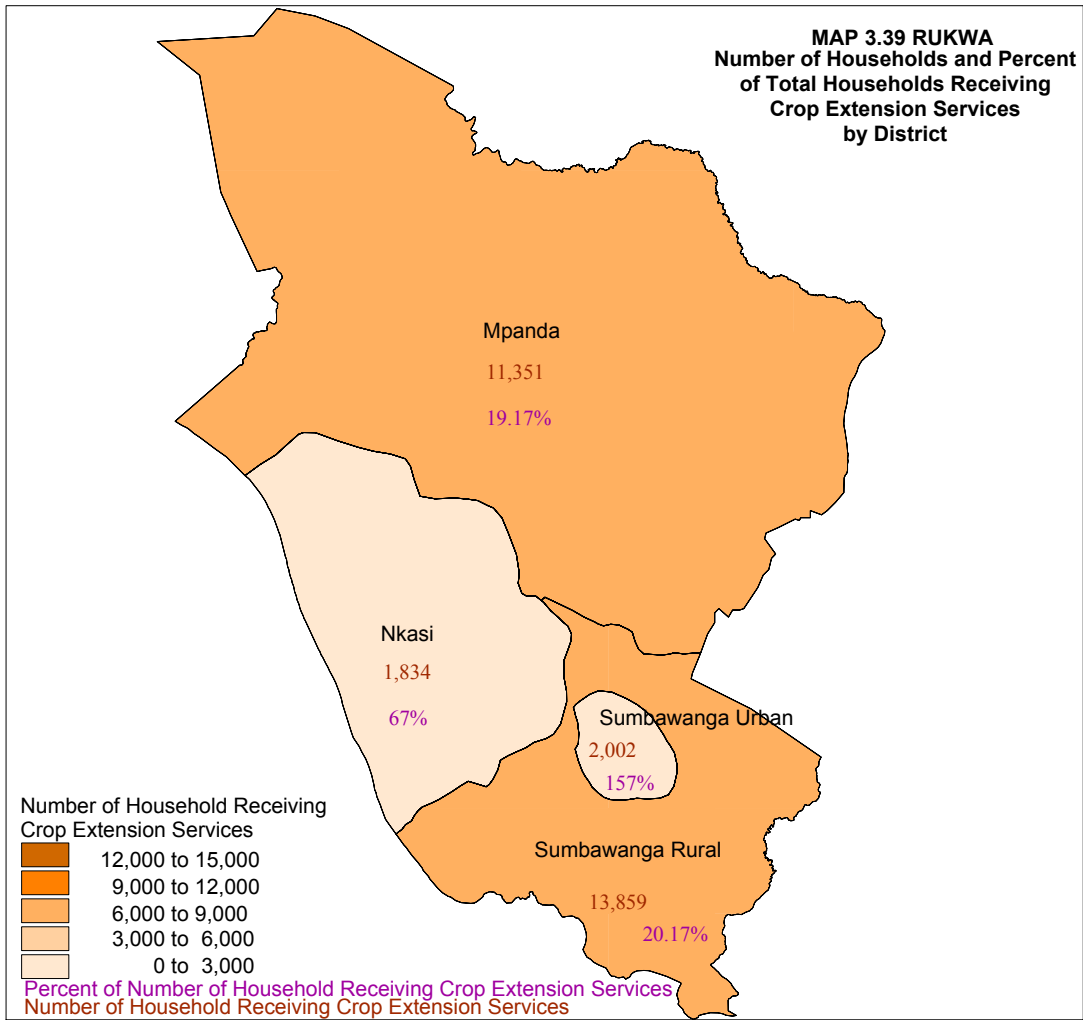
Type of Input	Households With Access to Input		Households Without Access to Inputs	
	Number	%	Number	%
Farm yard manure	19,966	11.6	152,375	88.4
Improved seeds	9,018	5.2	163,243	94.8
Pesticides/Fungicide	19,503	11.3	152,758	88.7
Inorganic fertiliser	11,103	6.5	160,960	93.5
Compost	11,103	6.5	160,960	93.5
Herbicide	269	0.2	171,991	99.8

A small number of households use inputs and this is particularly true of inputs that are not produced on farm i.e., improved seeds, fungicides, inorganic fertiliser and herbicides. In Rukwa region farm yard manure was used by 19,966 households which represent 12 percent of the total number of crop growing households. This was followed by households using insecticides/fungicides (11.3%), inorganic fertilisers had (6.5%), improved seeds (5.2%) compost (1.9%) and herbicide (0.2%) (Table 2.13).

3.9.2 Inorganic Fertilisers

Smallholders that use inorganic fertiliser in Rukwa mostly purchase from the local market/trade store (58.8% of the total number of inorganic fertiliser users) followed by co-operatives (24.3%) and crop buyers (12.1%). The remaining sources of inorganic fertilisers are minor (Chart 3.109).





The source of inorganic fertiliser was mainly more than 10 km from the household with most households residing between 10 and 20 km from the source (29%), followed by between 3 and 10 km (28%), 20 km and above (20%), between 1 km and 3 km (14%) and less than 1 km (9%) (Chart 3.110). Due to the very small number of households using inorganic fertilisers coupled with the small number of households responding to “not available” (12%) as the reason for not using, it may be assumed that access to inorganic fertiliser is not the main reason for not using it. Other reasons such as cost are more important with 69 percent of households responding to cost factors as the main reason for not using. In other words, it may be assumed that if the cost was affordable the demand would be higher and access to inorganic fertiliser would be made more available.

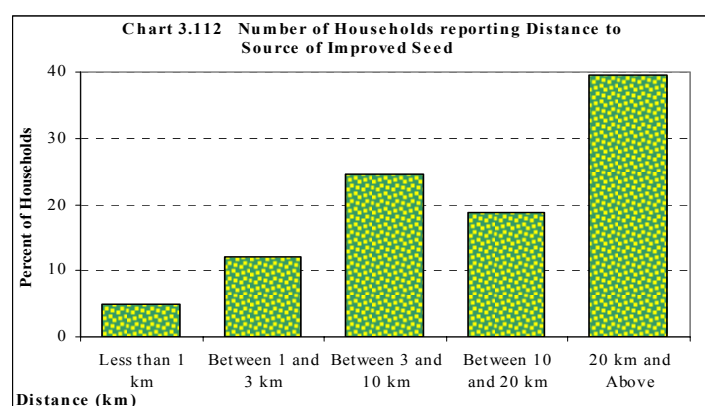
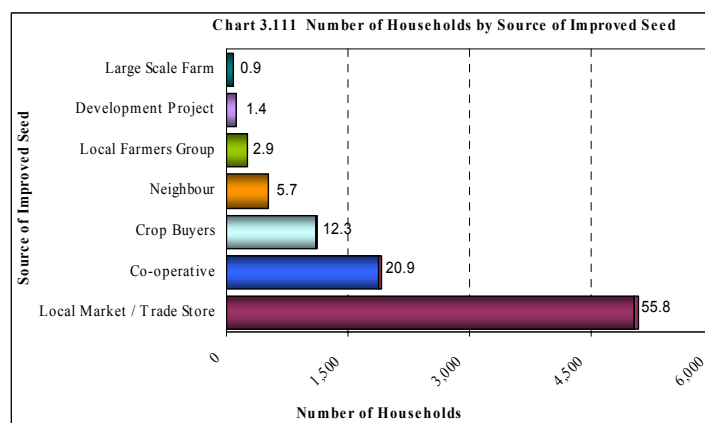
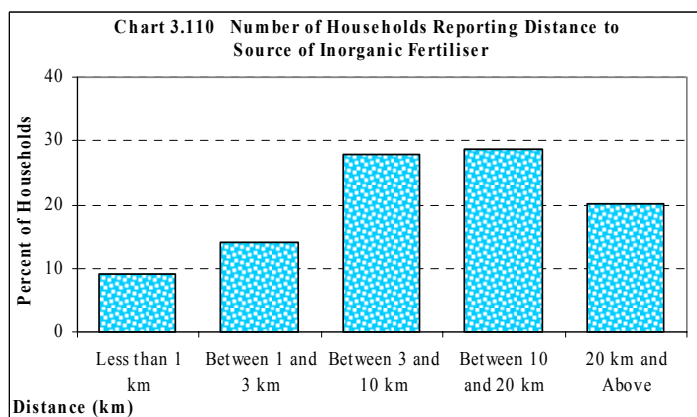
More smallholders use inorganic fertilisers in Mpanda than in other districts in Rukwa region (83.4% of households using inorganic fertilisers), followed by Sumbawanga Urban (8.5%). Other districts use very little inorganic fertiliser.

3.9.3 Improved Seeds

The percentage of households that used improved seeds was 5.2 percent of the total number of crop growing households. Most of the improved seeds were from the local market/trade store (55.9%) followed by co-operatives (20.9%) and crop buyers (12.3%). Other less important sources of improved seed are from neighbours (5.7%), local farmers groups (2.9%), development partners (1.4%) and large scale farms (0.9%) (Chart 3.111).

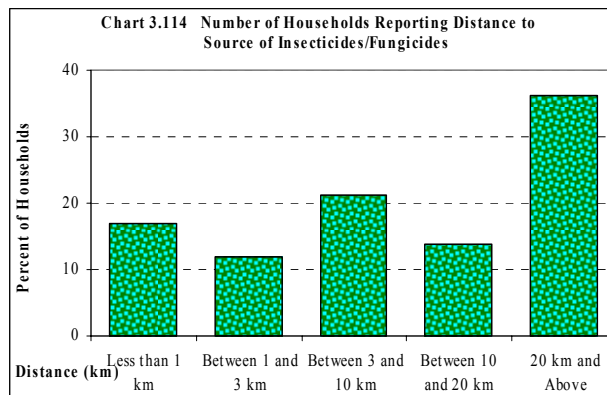
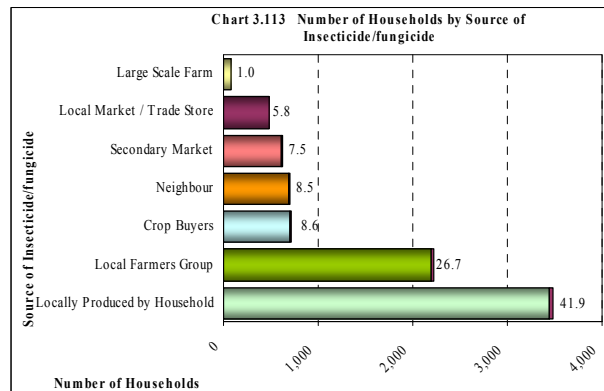
Access to improved seed is better than access to chemical inputs with 30 percent of households obtaining the input within 1 km of the household (Chart 3.112). This is in line with the higher use of improved seed compared to other chemical inputs, which further supports the concept that it is not the availability that is the main issue in the use of inputs but rather other factors such as cost.

The districts that mostly used improved seeds are Mpanda (66.3 percent of the total number of households using improved seeds in Rukwa region), followed by Sumbawanga Rural (20.7%) and Sumbawanga Urban (8.7%) and Nkasi (4.3%) (Map 3.44).



Insecticides and Fungicides

Most smallholder households using insecticides and fungicides mainly purchased them from locally produced by households’ (41.9% of the total number of fungicide users) and local farmers group (26.7%). Other sources of insecticides/fungicides are of minor importance (Chart 3.113).

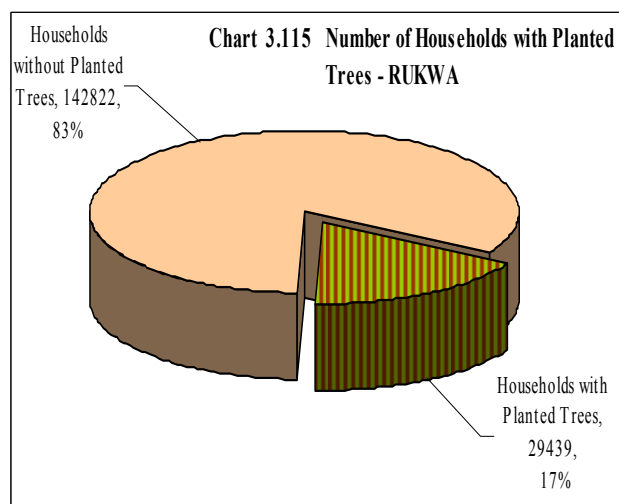


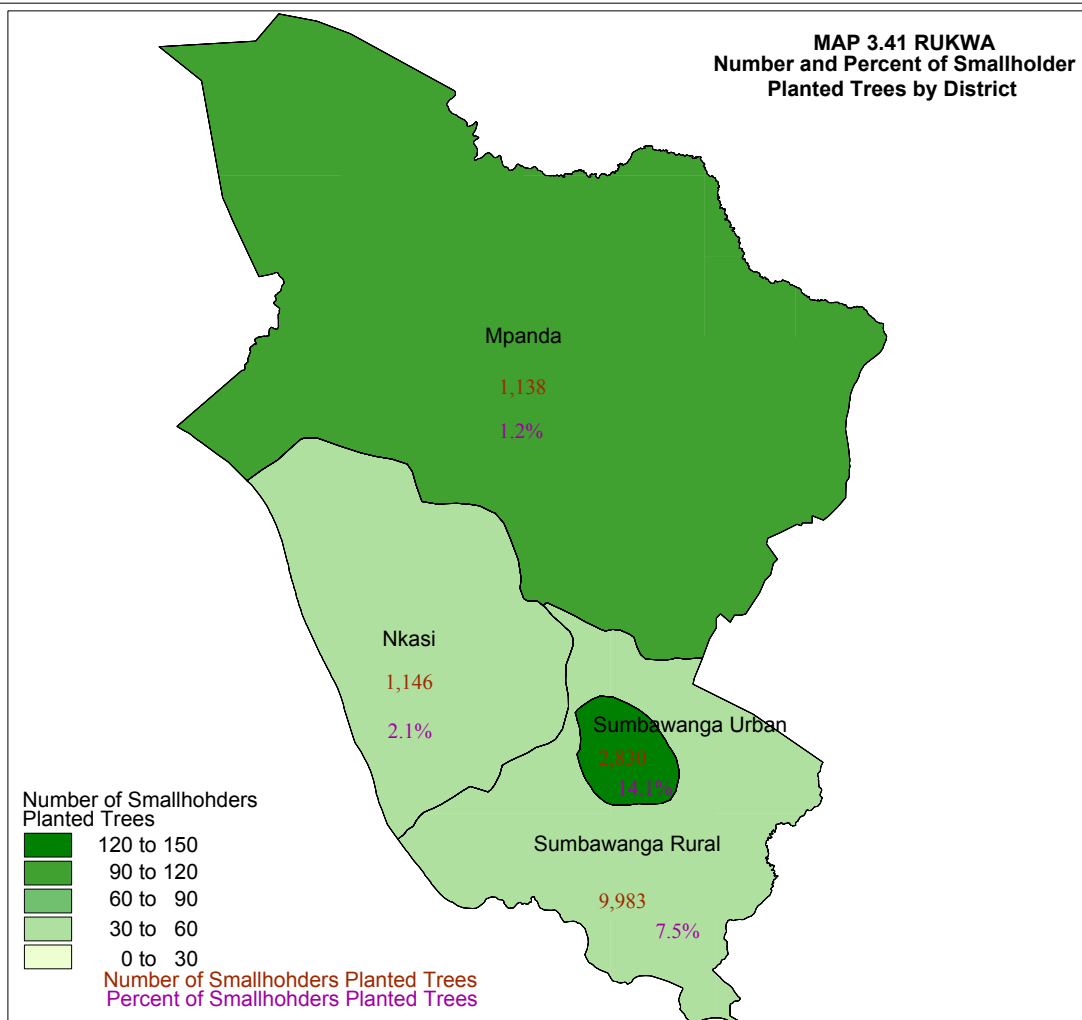
However, Chart 3.114 shows that there is no distinct pattern for the number of households with varying distances from the source of insecticide/fungicide. The small number of households using insecticides/fungicides coupled with the 7 percent of households responding to “not available” as the reason for not using it may be assumed that access is not the main reason for not using. Other reasons such as cost are more important with 66 percent of households responding to cost factors as the main reason for not using. In other words, it is assumed that if the cost was affordable, the demand would be higher and access to insecticides/fungicides would be made more available. Fungicide is used more in Sumbawanga Urban district (36.1 percent of the total number of households that use fungicide in the region), followed by Sumbawanga Rural (32.1%), Mpanda (24.1%) and Nkasi (7.7%).

3.9 Tree Planting

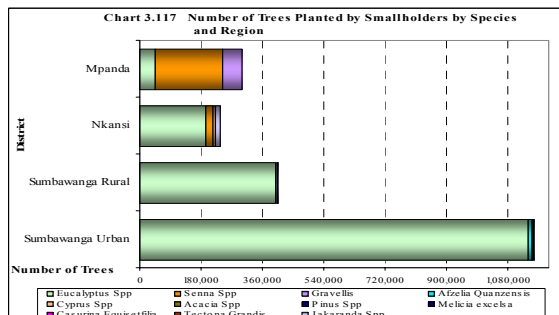
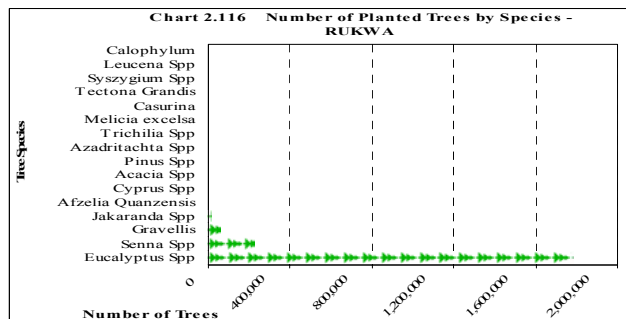
The number of households involved in tree farming was 29,439 representing 17.1 percent of the total number of agriculture households (Chart 3.115).

The number of trees planted by smallholders on their allocated land was 2,101,632 trees. The average number of trees planted per household planting trees was 71 trees

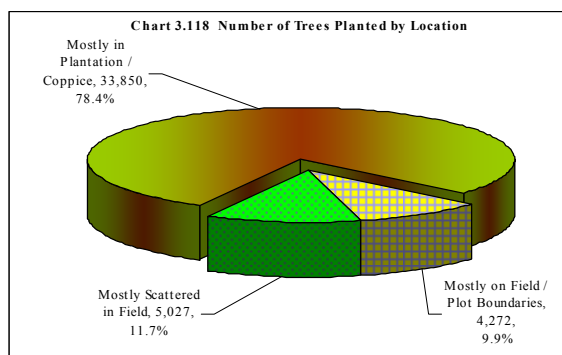




The main species planted by smallholders is Eucalyptus (1,778,915, 85%), senna spp (222,188, 11%), Gravelia spp (58,385 trees, 3%), jacaranda spp (17,556 trees, 1% and afzelia quanzensis (10,399 trees, 0.5%). The remaining trees species are planted in comparatively small numbers (Chart116.).

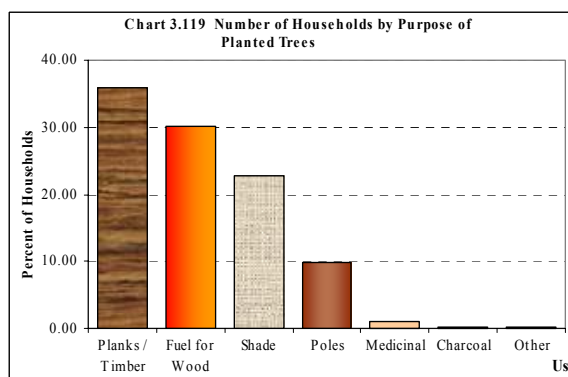


Sumbawanga Urban district has the largest number of planted trees than any other district (79.3%) and is dominated by Eucalyptus species. This is followed by Sumbawanga Rural (8.2%) which is dominated by Eucalyptus species, Nkasi (7.3%) and Mpanda (5.2%) which is mainly planted with Eucalyptus (Chart 3.117 and Map 3.45.).



Smallholders mostly plant trees on the plantation or coppices. The proportion of trees that planted on

field plantation or coppices was 78 percent, followed by scattered around fields (12%) and then trees planted in a field or plot boundaries (10%) (Chart 3.118).

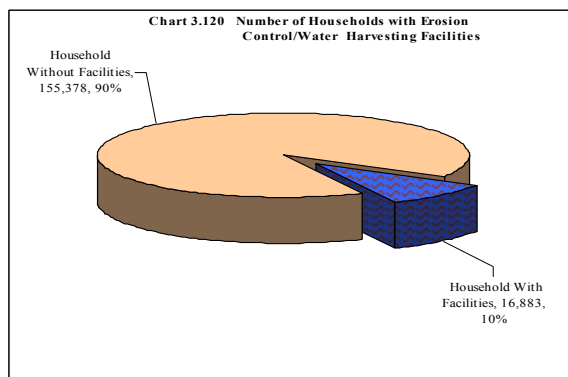


The main purpose of planting trees is to obtain planks/timber (35.9%). This is followed by wood for fuel (30.1%), shade (22.7%) and poles (9.8%), medicinal (1.1%), charcoal and other had (0.26%) each (Chart 3.119).

3.11 Irrigation and Erosion Control Facilities

Erosion control and water harvesting facilities are grouped together as they normally have dual purposes of reducing erosion and increasing the amount of water available for crop production.

The number of agricultural households that had soil erosion and water harvesting facilities on their farms was 16,883

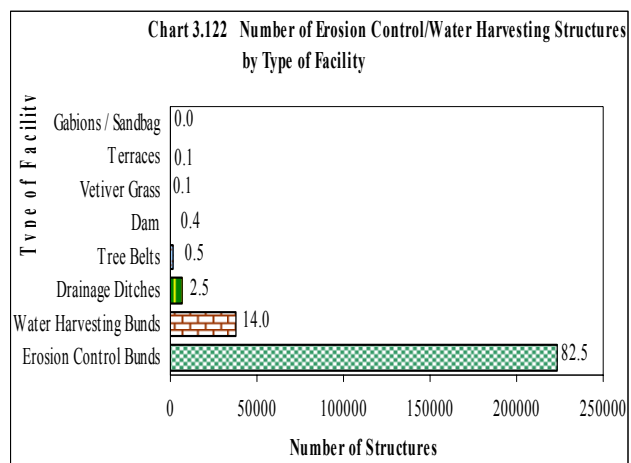
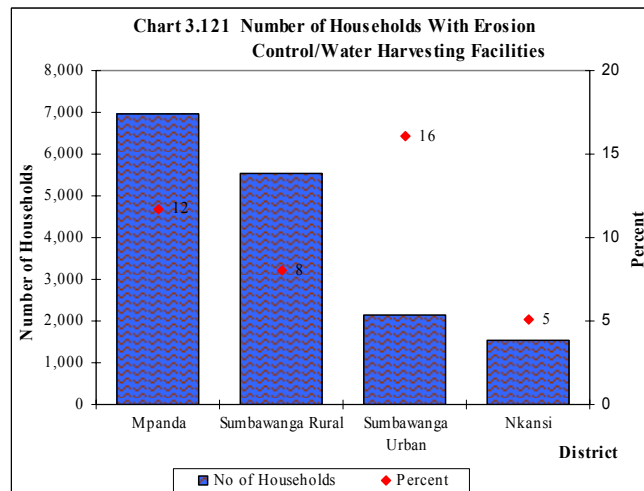


which represent 10 percent of the total number of agricultural households in the region (Chart 3.120).

The proportion of households with soil erosion control and water harvesting facilities was highest in Sumbawanga Urban district (16%) followed by Mpanda (12%) and Sumbawanga Rural (8%). Nkansi district had the lowest proportion of (5%) (Chart 3.121).

Erosion control bunds accounted for 82.5 percent of the total number of structures, followed by water harvesting bunds (14%), drainage ditches (2.5%), tree belts (0.5%), dam (0.4%), terraces and vetiver grass had (0.1%) each. However, gabions/sandbags were not used in the district (Chart 3.122) and Map 3.46

Erosion control bunds and water harvesting bunds together had 261,070 structures. This represented 96.5 percent of the total structures in the region. The remaining 3.5 percentages were shared among the rest of the erosion control methods mentioned above. Mpanda and Sumbawanga Rural districts had 260,332 erosion control structures which is equivalent to 96.2 percent of the total erosion structures in the region.



3.12 LIVESTOCK RESULTS

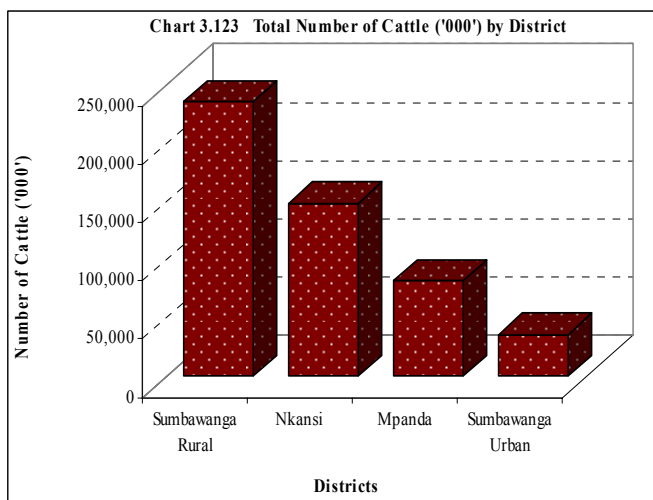
3.12.1 Cattle Production

The total number of cattle in the region was 504,727. Cattle were the most dominant livestock type in the region followed by goats, sheep and pigs. The region had 3.0 percent of the total cattle population on Tanzania Mainland.

3.12.1.1 Cattle Population

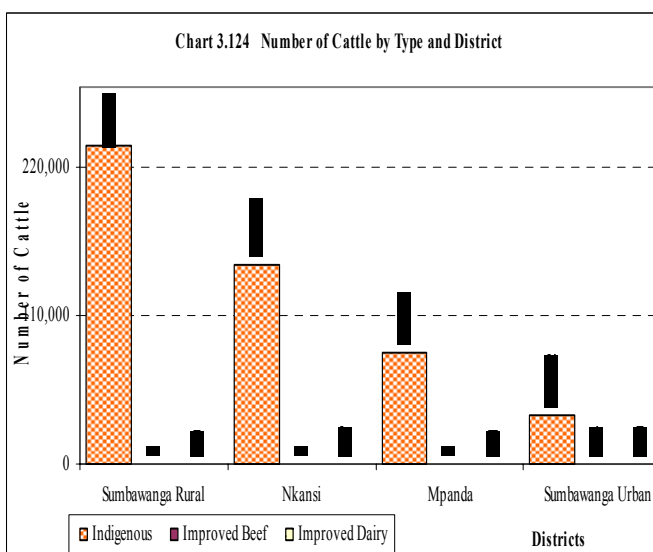
The number of indigenous cattle in Rukwa region was 504,345 (99.7 % of the total number of cattle in the region), 1,107 cattle (0.2%) were dairy breeds and 274 cattle (0.1%) were beef breeds.

The census results show that 43,551 agricultural households in the region (25.3% of total agricultural households) kept 0.5 million cattle. Therefore, the average number of cattle per household was 12 (Chart 3.123 and Map 3.47).



However Sumbawanga Urban district had the highest density (61 head per km²) (Map 3.48).

Although Sumbawanga Rural district had the largest number of cattle in the region, most of it was indigenous. The number of dairy cattle was very small and there was no beef cattle kept in the respective district. Mpanda district had the largest number of dairy cattle in the region. In general, the number of beef cattle in the region was insignificant (Chart 3.124).



3.12.1.2 Herd Size

Thirteen percent of the cattle-rearing households had herds of size 1-5 cattle with an average of three cattle per household. Herd sizes of 6-30 accounted for about 37 percent of all cattle in the region. Only 14 percent of the cattle rearing households had herd sizes of 31- 100 cattle. About 50.2 percent of total cattle rearing households had herds of size 1-30 cattle and owns 50.1 percent of total cattle in the region, resulting in an average of 6 cattle per cattle rearing household. There were about 463 households with a herd size of more than 151 cattle each (123,239 cattle in total) resulting in an average of 266 cattle per household.

3.12.1.3 Cattle Population Trend

Cattle population in Rukwa decreased during the period of eight years from 426,329 in 1995 to 378,338 cattle in 2003. This trend depicts an overall annual negative growth rate of -1.48 percent (Chart 3.125).

However, there was a very sharp decrease in number of cattle for the period of four years from 1995 to 1999 at the rate of -2.55 percent whereby the number dropped from 426,329 to 384,410. Moreover, the number of cattle was estimated to have slightly decreased from 384,410 in 1999 to 378,338 in 2003 at the rate of -1.48 percent.

3.12.1.4 Improved Cattle Breeds

The total number of improved cattle in Rukwa region was 1,328 (1,107 dairy and 274 improved beef). The dairy cattle constituted 0.2 percent of the total cattle and 88.4 percent of improved cattle in the region. The number of beef cattle in the region was insignificant constituting only 20.6 percent of the total number of the improved cattle and 0.1 percent of the total cattle. The number of improved cattle increased from 448 in 1995 to 1,107 in 2003 at an annual growth rate of 12.10. The growth rate was higher for the period from 1995 to 1999 (63.54%) than from 1999 to 2003 when it dropped by -23.16 percent (Chart 126).

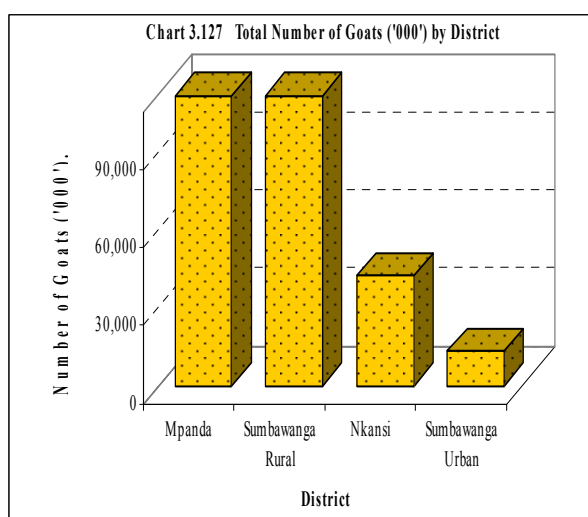
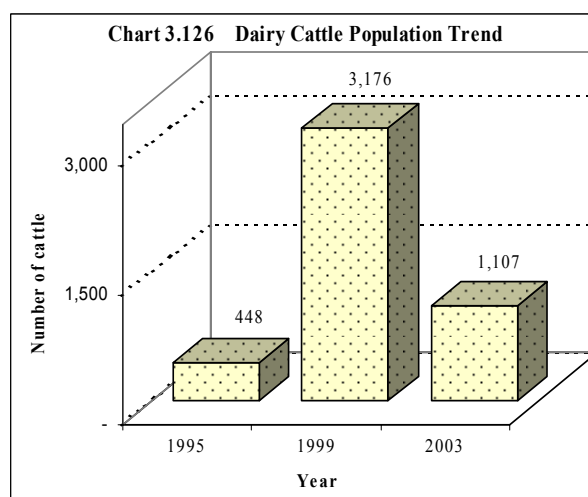
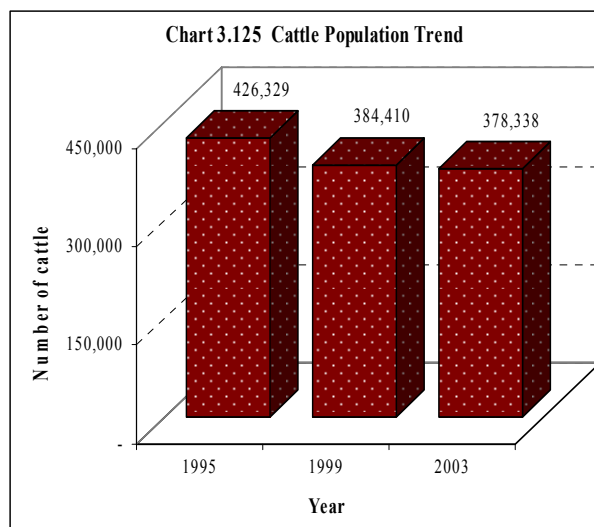
3.12.2. Goat Production

Goat rearing was the second most important livestock keeping activity in the region followed by sheep and pig rearing. In

terms of total number of goats on the Mainland, Rukwa region ranked 16 out of the 21 regions with 2.5 percent of the total goats on the Mainland.

3.12.2.1 Goat Population

The number of goat-rearing-households in Rukwa region was 43,150 (25% of all agricultural households in the region) with a total of 292,849 goats giving an average of 7 head of goats per goat-rearing-household. Sumbawanga Rural district had the largest number of goats (118,607 goats, 40.5% of all goats in the region) followed by Mpanda (118,261 goats, 40.4%) and Nkasi (42,696 goats, 14.6%). Sumbawanga Urban district had the least number of goats (13,285 goats, 4.5%) (Chart 3.127 and Map 3.49) However both Sumbawanga Urban and Sumbawanga Rural districts had the highest density of goats (22 head per km²) each (Map 3.50).



3.12.2.2 Goat Herd Size

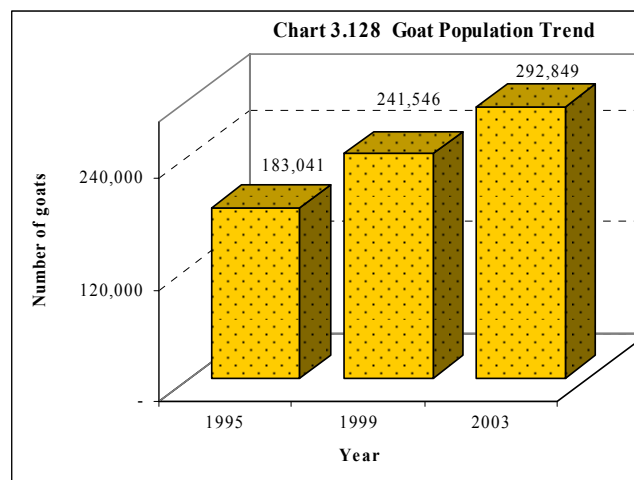
Forty nine percent of the goat-rearing households had herd size of 1-4 goats with an average of 2 goats per goat rearing household. Sixty six percent of total goat-rearing households had herd size of 1-14 goats and owned 66.3 percent of the total goats in the region resulting in an average of 5 goats per goat-rearing households. The region had 321 households (0.7%) with herd sizes of 40 or more goats each (16,877 goats in total), resulting in an average of 53 goats per household.

3.12.2.3 Goat Breeds

Goat husbandry in the region was dominated by the indigenous breeds that constituted 98.6 percent of the total goats in the region. Improved goats for meat and diary goats constituted 0.8 and 0.6 percent of total goats respectively.

3.12.2.4 Goat Population Trend

The overall annual growth rate of goat population from 1995 to 2003 was 6.05 percent. This positive trend implies eight years of population increase from 183,041 in 1995 to 292,849 in 2003. The number of goats increased from 183,041 in 1995 at an estimated annual rate of 7.18 percent to 241,546 in 1999. From 1999 to 2003, the goat population increased at an annual rate of 4.93 percent (Chart 128).

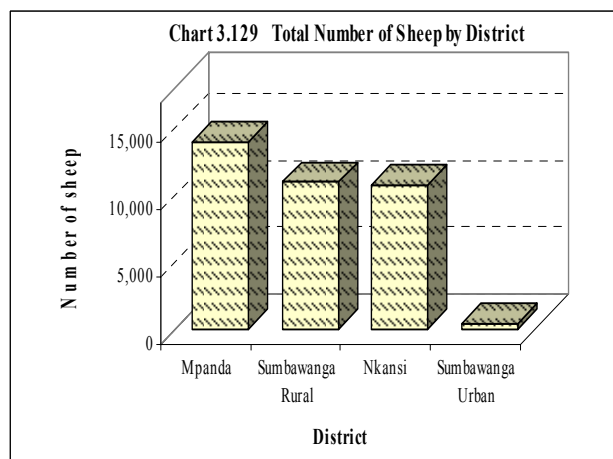


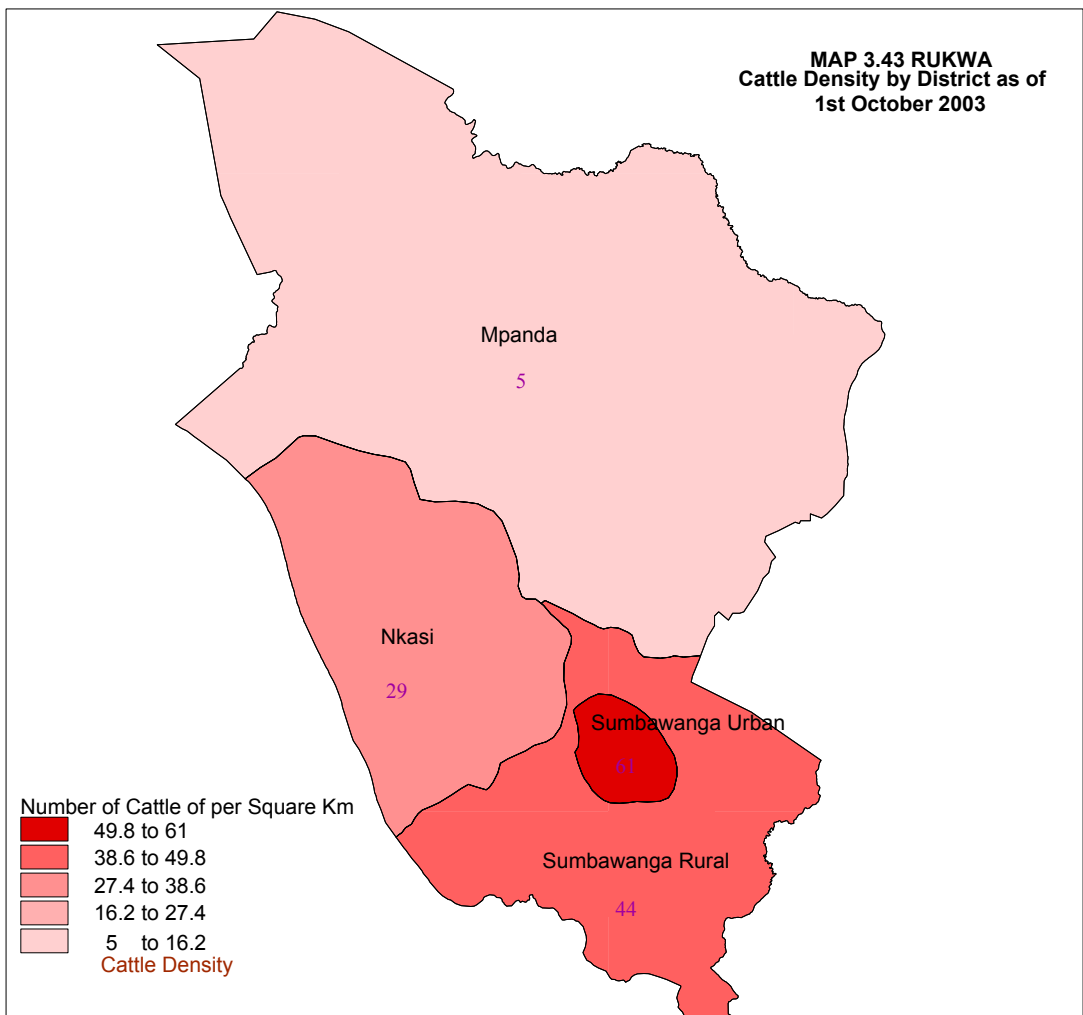
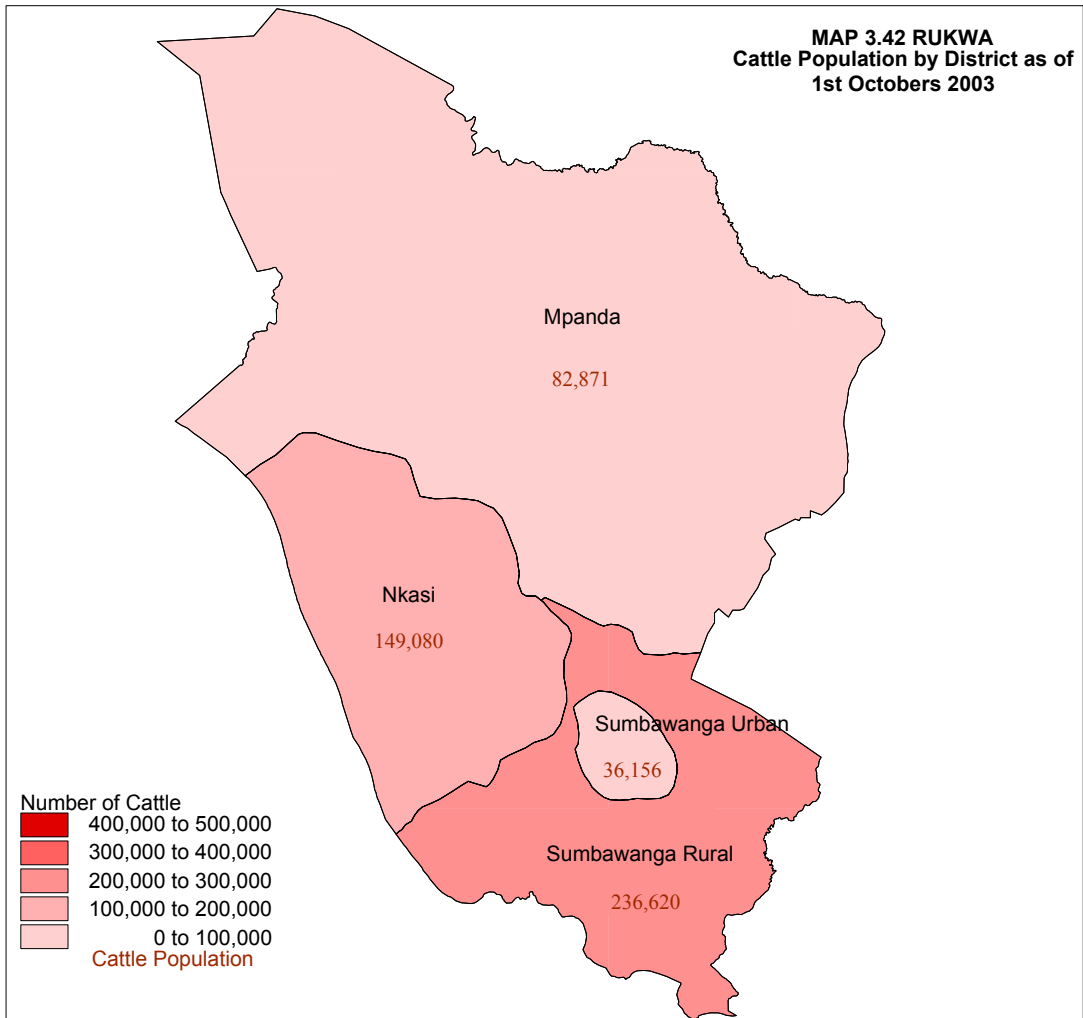
3.12.3. Sheep Production

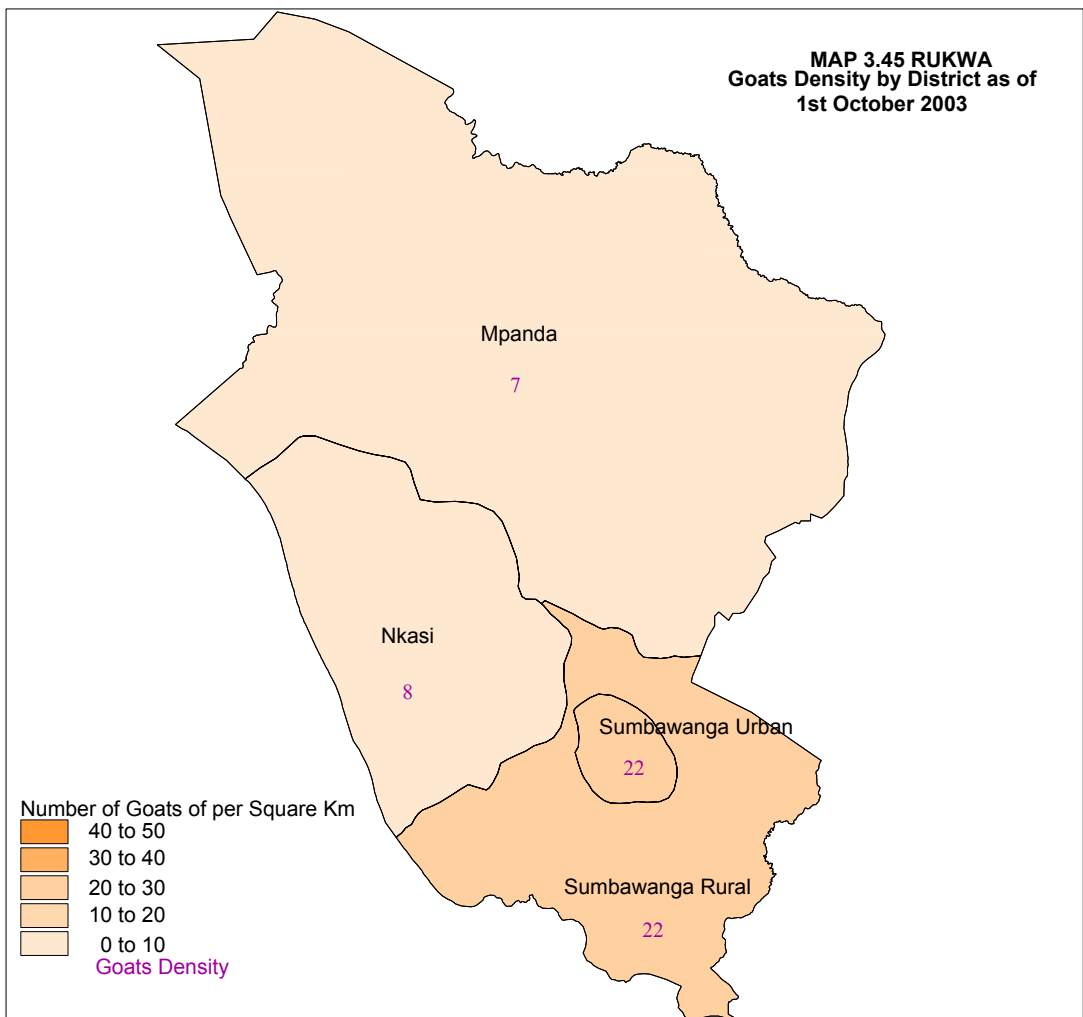
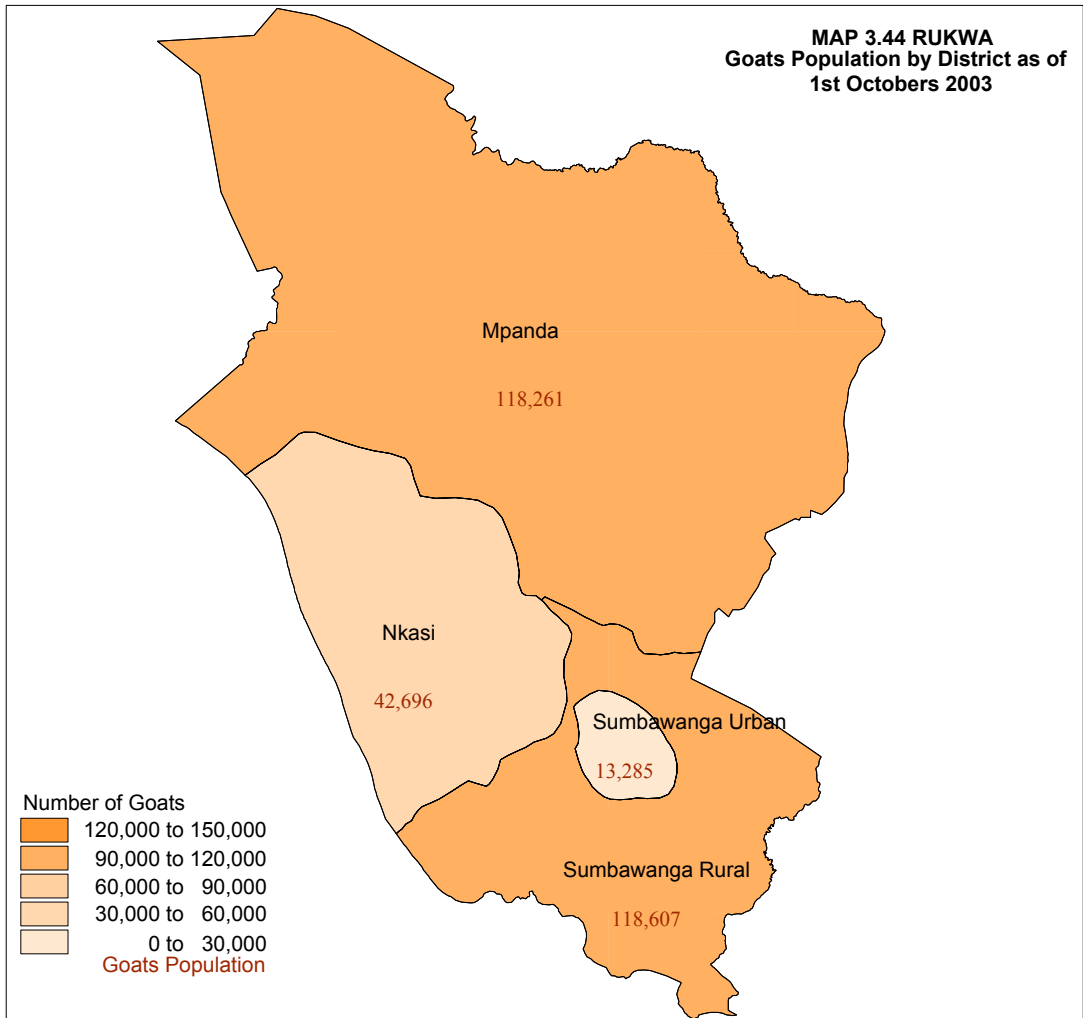
Sheep rearing was the third important livestock keeping activity in Rukwa region after cattle and goats. The region ranked 16 out of 21 Mainland regions and had 0.9 percent of all sheep on Tanzania Mainland.

3.12.3.1 Sheep Population

The number of sheep-rearing households was 4,770 (2.8 % of all agricultural households in Rukwa region) rearing 36,073 sheep, giving an average of 8 heads of sheep per sheep-rearing household. The district with the largest number of sheep was Mpanda with 13,967 sheep (38.7% of total sheep in Rukwa region) followed by Sumbawanga Rural (10,953 sheep, 30.4%) and Nkasi (10,756 sheep, 29.8%). Sumbawanga Urban district had the least number of sheep (397 sheep, 1.1%) (Chart 3.129 and Map 3.51). Sumbawanga Rural and Nkasi districts also had the highest density (2 head per km²) (Map 3.52) each. All sheep kept were indigenous breed







3.12.3.2 Sheep Population Trend

The overall annual growth rate of the sheep population for the eight year period from 1995 to 2003 is estimated at 22.92 percent. The population increased at an annual rate of 17.11 percent from 6,923 in 1995 to 13,021 in 1999. From 1999 to 2003, sheep population increased at an annual rate of 22.92 percent (Chart 3.130).

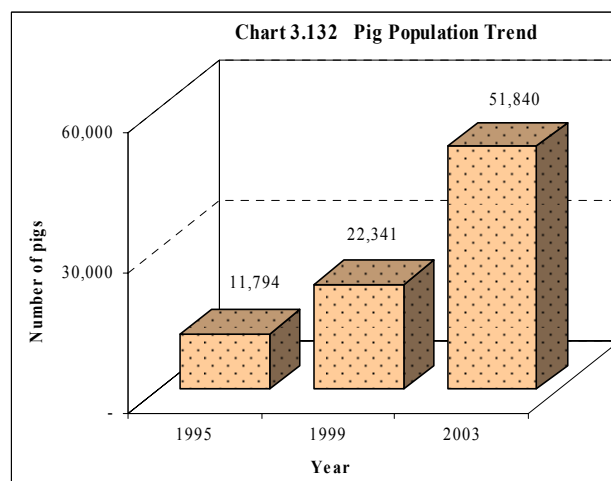
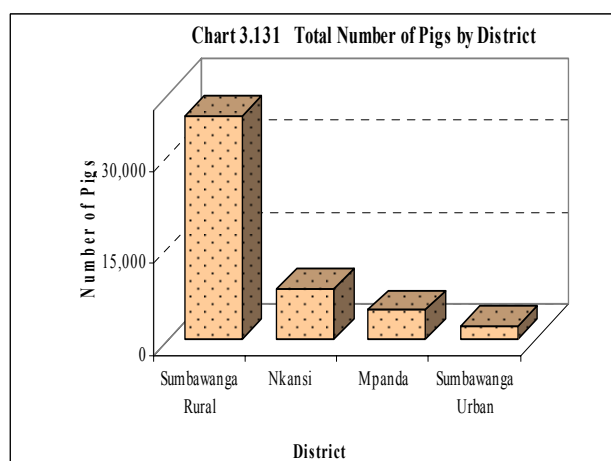
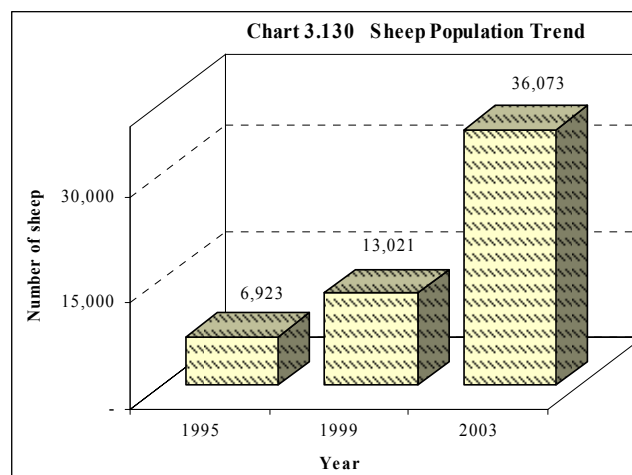
3.12.4. Pig Production

Piggery was the least important livestock keeping activity in the region after cattle, goats and sheep. The region ranked 16 out of 21 Mainland regions and is 0.64 percent of the Mainland total pigs.

The number of pig-rearing agricultural households in Rukwa region was 12,101 (7% of the total agricultural households in the region) rearing 51,840 pigs. This gives an average of 4 pigs per pig-rearing household. The district with the largest number of pigs was Sumbawanga Rural with 36,455 pigs (70.3% of the total pig population in the region) followed by Nkansi (8,396 pigs, 16.2%), Mpanda (4,837 pigs, 9.3%) Sumbawanga Urban (2,152 pigs, 4.2%) (Chart 3.131 and Map 3.53). However Sumbawanga Urban district had the highest density (3.6 head per km²) (Map 3.54).

3.12.4.1 Pig Population Trend

The overall annual growth rate of the pig population over the eight years period from 1995 to 2003 was 20.33 percent. During this period the population grew from 11,794 to 51,840. The pig population increased from 11,794 in 1995 to 22,341 in 1999 at a rate of 17.32 percent. The growth rate increased to 23.42 percent during the following four years from 1999 to 2003 in which pig population increased from 22,341 to 51,840 (Chart 3.132).



3.12.5 Chicken Production

The poultry sector in Rukwa region was dominated by chicken production. The region contributed 3.4 percent to the total chicken population on Tanzania Mainland.

3.12.5.1 Chicken Population

The number of households keeping chicken was 109,912 raising about 1,122,432 chickens. This gives an average of 10 chickens per chicken-rearing household. In terms of total number of chickens in the country, Rukwa region was ranked eighth out of the 21 Mainland regions.

The District with largest number of chickens was Mpanda (492,601 chickens, 43.9% of the total number of chickens in the region) followed by Sumbawanga Rural (445,939 39.7%) and Nkasi (130,643, 11.6%). Sumbawanga Urban district had the smallest number of chickens (53,250, 4.7%) (Chart 3.133 and Map 3.55). However Sumbawanga Urban district had the highest density (90 chicken per km²) (Map 3.56).

3.12.5.2 Chicken Population Trend

The overall annual chicken population growth rate during the eight-year period from 1995 to 2003 was 2.24 percent. The population decreased at a rate of -2.15 percent from 1995 to 1999 after which it increased at a rate of 6.83 percent for the four year period from 1999 to 2003 (Chart 3.134).

Ninety nine percent of all chicken in Rukwa region were of indigenous breed. The dominance of indigenous breed makes the population trend for the indigenous chicken more-or-less the same as that of the total chickens in the region.

3.12.5.3 Chicken Flock Size

The results indicate that about 86.5 percent of all chicken-rearing households were keeping 1-19 chickens with an average of 7 chickens per holder. About 13.3 percent of holders were reported to be keeping the flock size of 20 to 99 chickens with an average of 32 chickens per holder.

Only 0.22 percent of holders kept the flock sizes of 100 chickens or more at an average of 150 chickens per holder (Table 3.14).

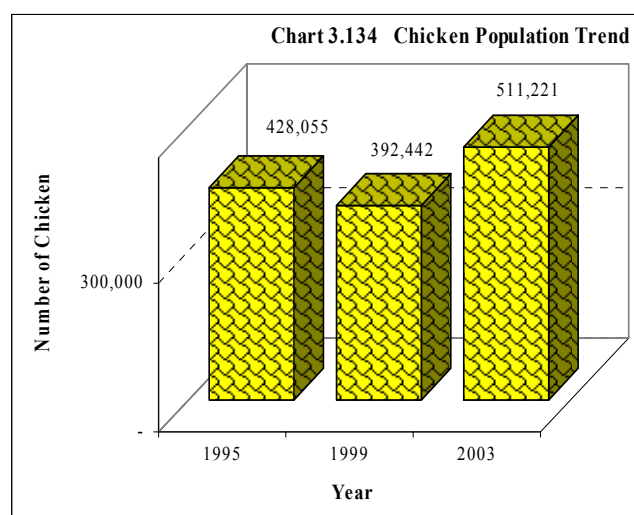
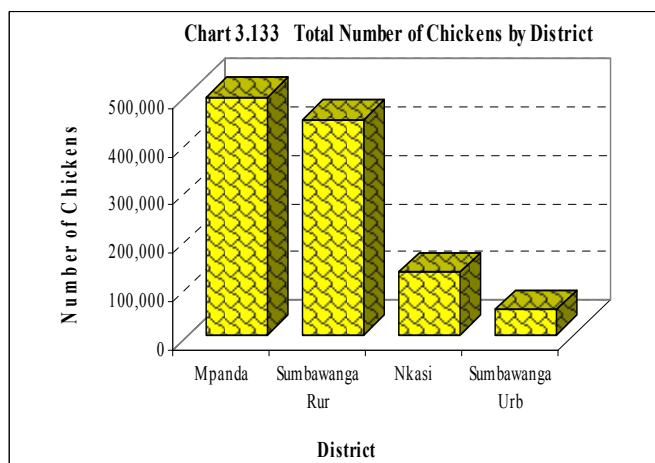
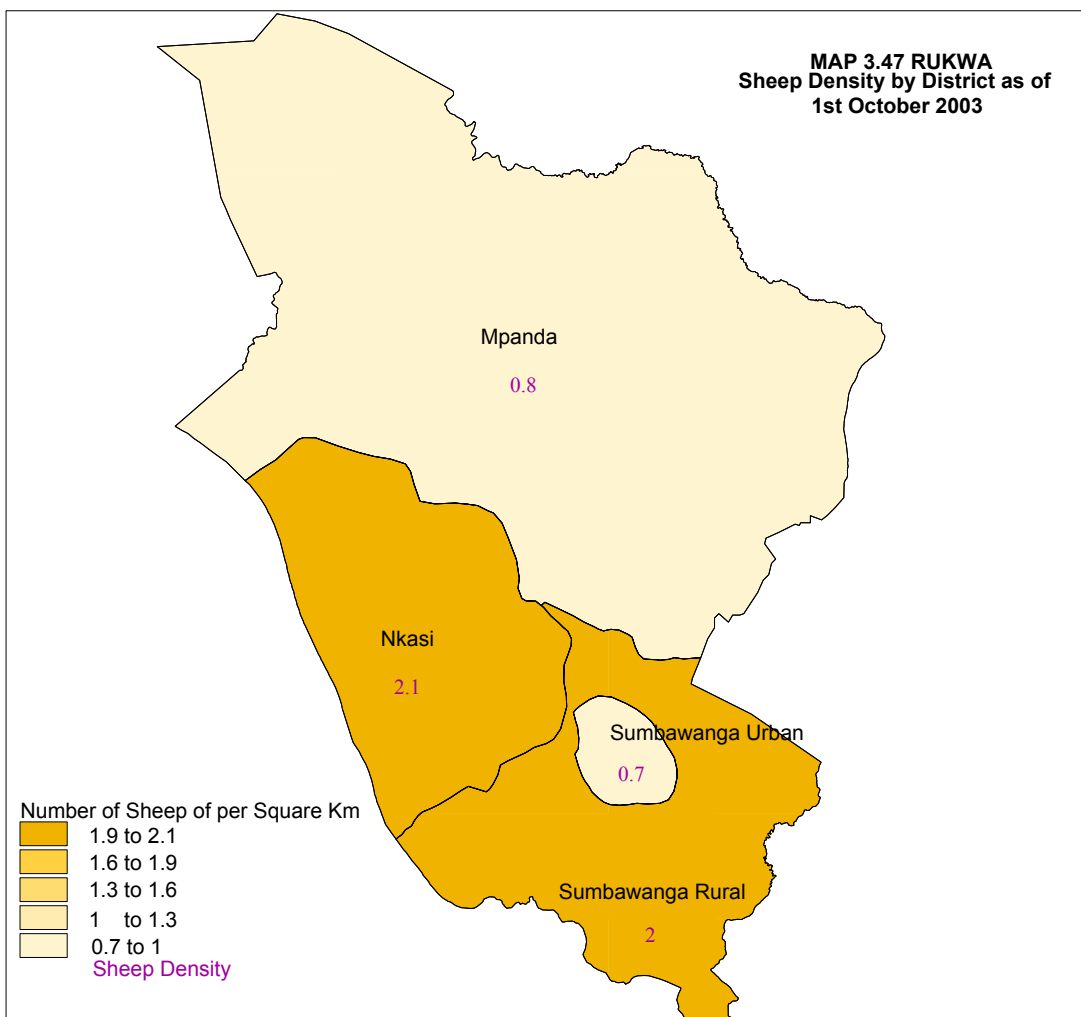
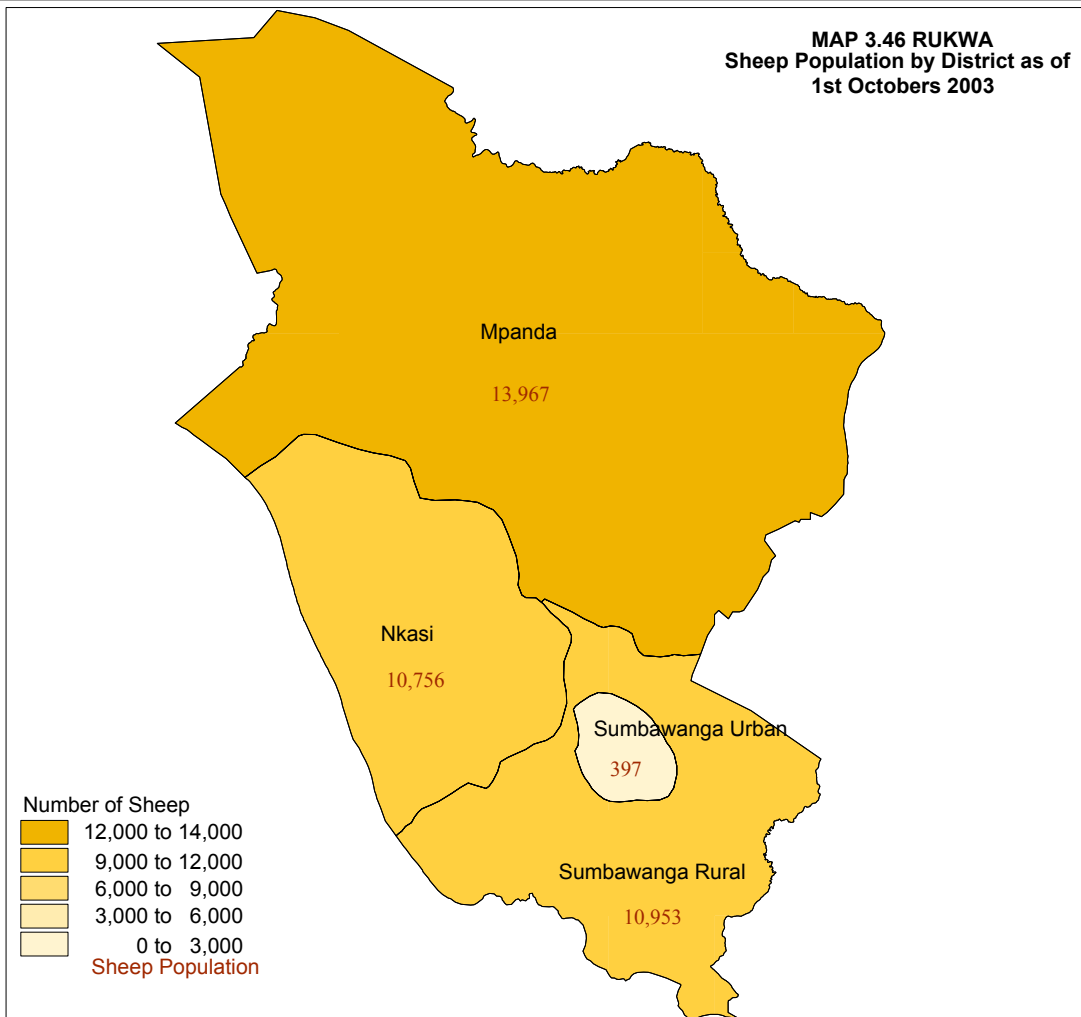
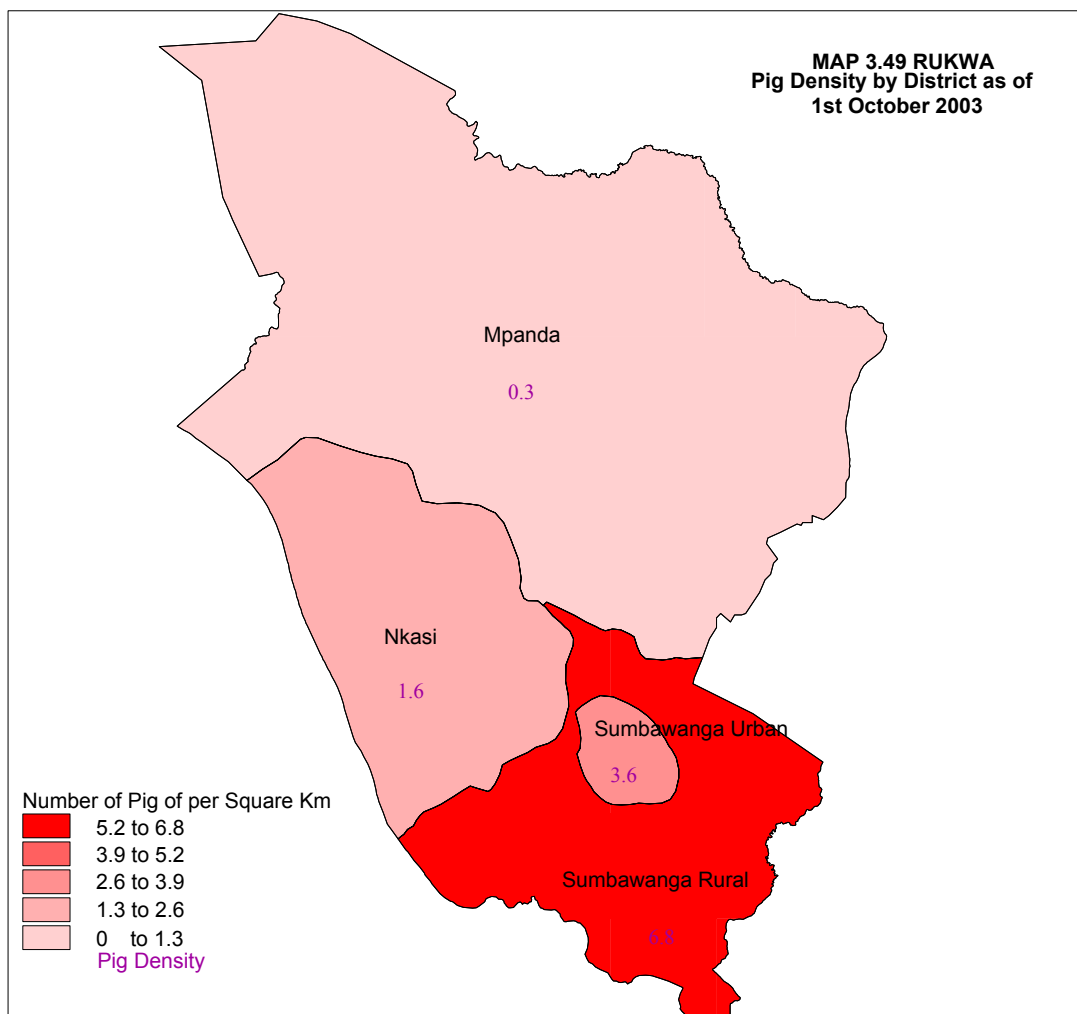
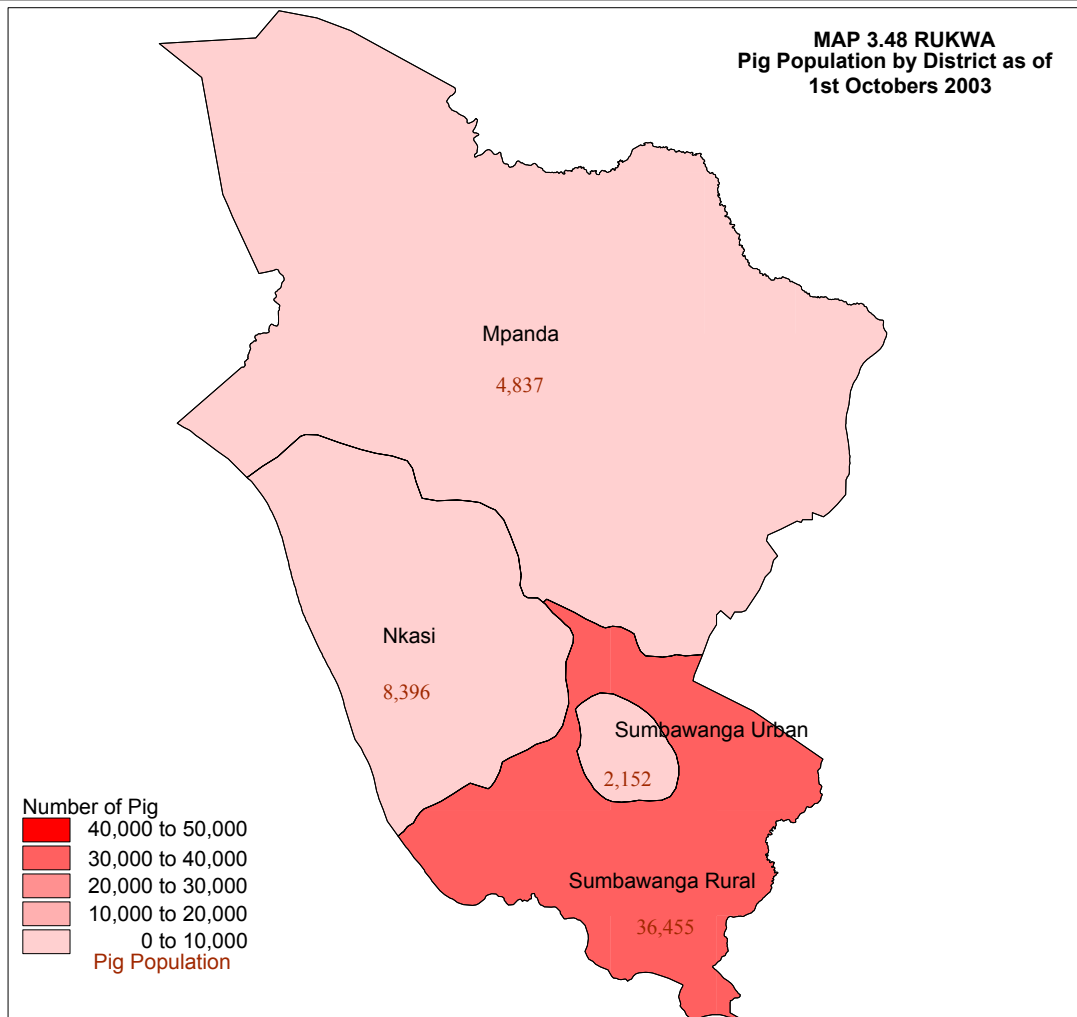
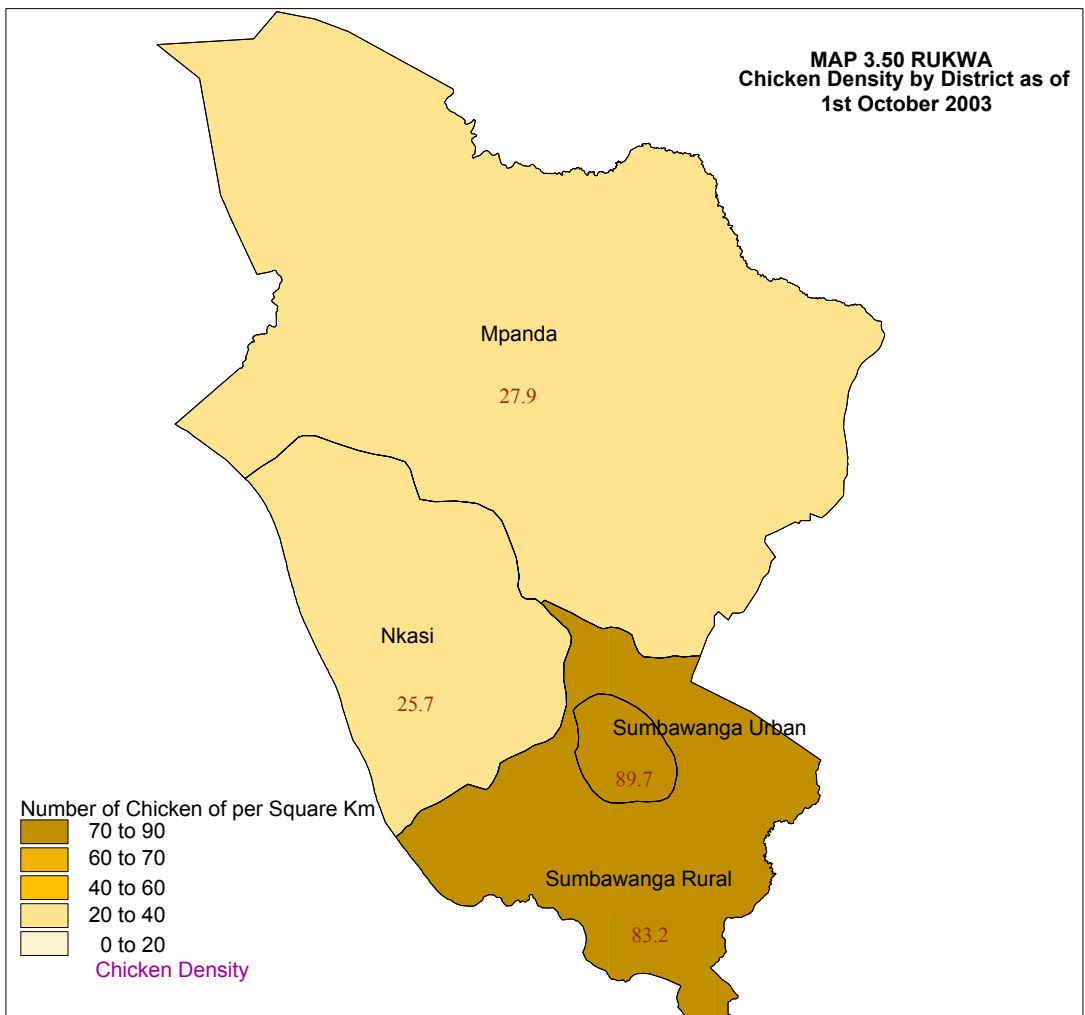
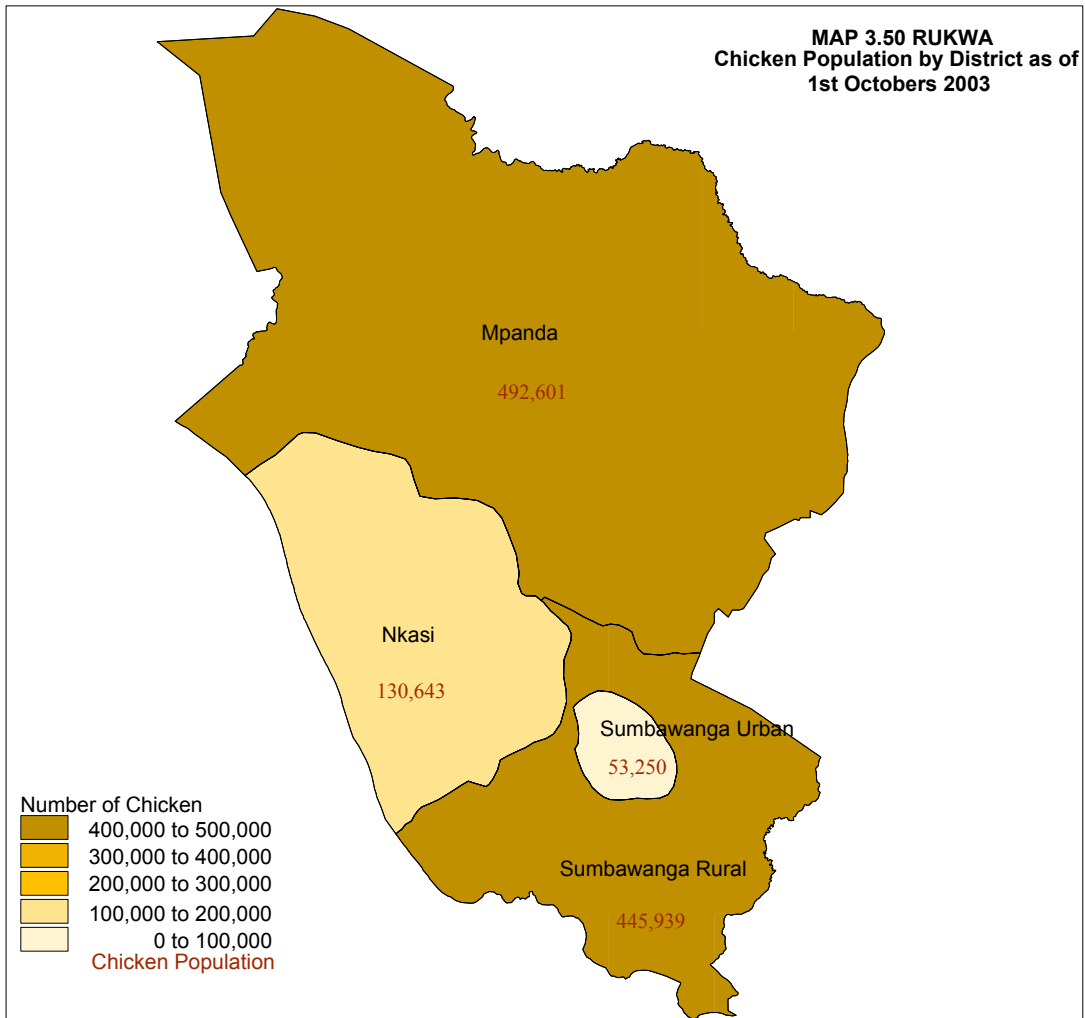


Table 3.15 Number of Households and Chickens Raised by Flock Size

Flock Size	Number of Households	%	Number of Chicken	Average Chicken by Households
1-4	38,452	35.0	92,665	2
5-9	31,281	28.5	204,580	7
10-19	25,278	23.0	321,753	13
20-29	6,961	6.3	155,776	22
30-39	4,248	3.9	136,546	32
40-49	2,087	1.9	87,172	42
50-99	1,365	1.2	87,994	64
100+	240	0.2	35,946	150
Total	109,912	100	1,122,432	10





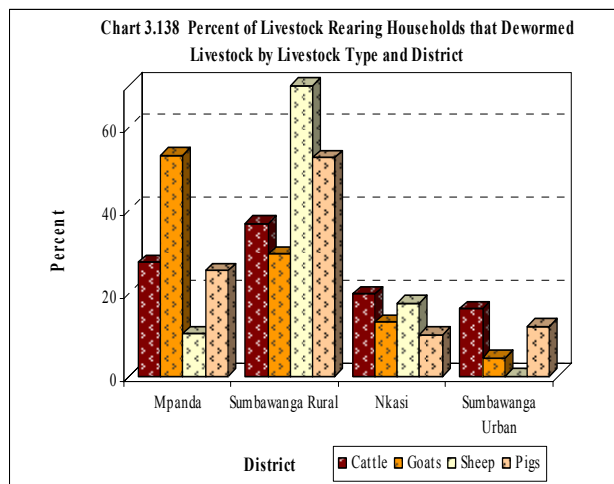


The most practiced method of tick controlling was spraying with 35 percent of all livestock-rearing households in the region using the method. Other methods used were dipping (4%), smearing (2%) and other traditional methods like hand picking (10%). However, 49 percent of livestock-keeping households did not use any method.

The most common method used to control tsetse flies was spraying which was practiced by 11 percent of livestock-rearing households. This was followed by dipping (6%) and trapping (2%). However, 81 percent of the livestock rearing households did not use any of the three aforementioned methods.

3.12.7.1 Deworming

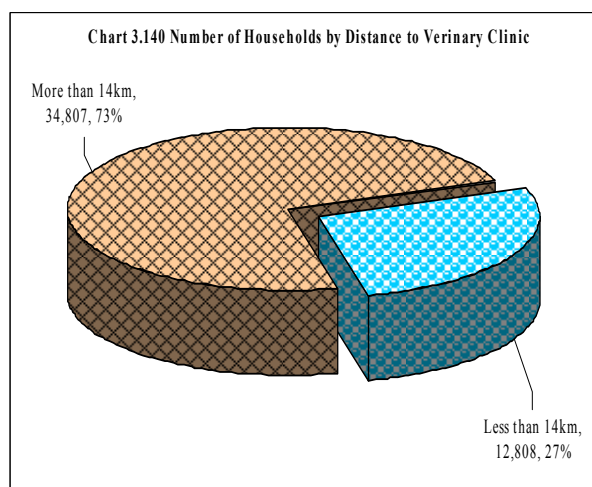
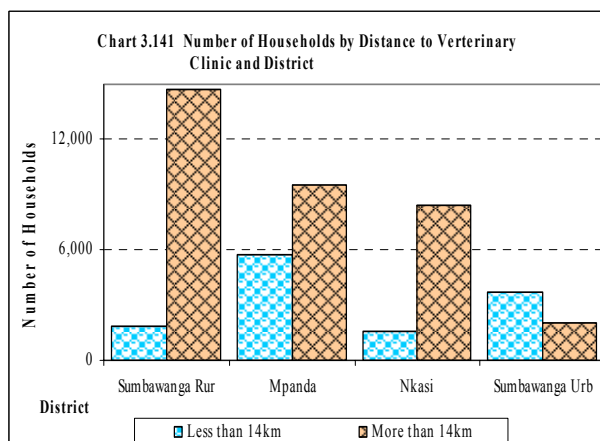
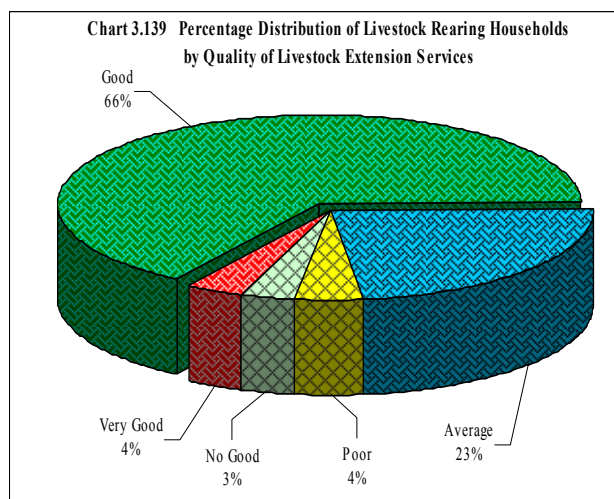
Livestock rearing households that dewormed their animals were 48,587 (57% of the total livestock rearing households in the region). The percentage of the households that dewormed cattle was 38 percent, goats (32%), sheep (17%) and pigs (4%) (Chart 3.138).



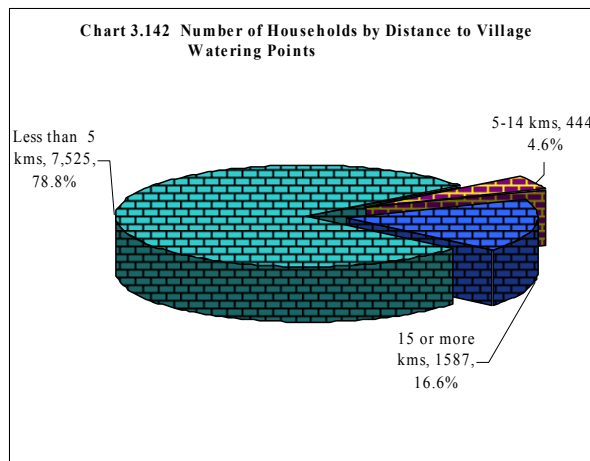
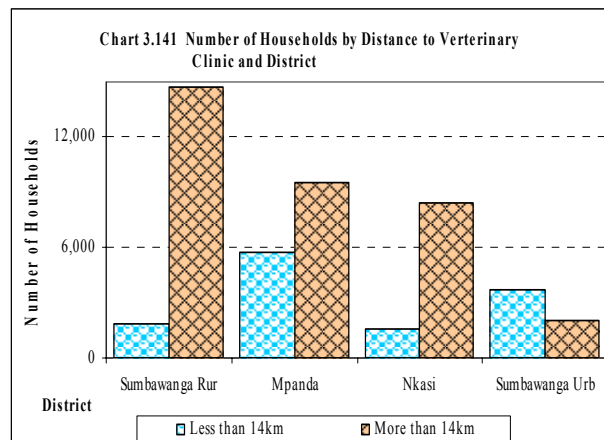
3.12.8. Access to Livestock Services

3.12.8.1 Access to Livestock Extension Services

The total number of households that received livestock advice was 17,928, representing 30.8 percent of the total livestock-rearing households and 10.4 percent of the agricultural households in the region. The main livestock extension agent was the government which provided service to about 93.9 percent of all households receiving livestock extension services. The rest of the households got services from large-scale farmers (3.58%), Co-operatives and others provided (1%) each and NGO/developing Projects had (0.3).



About 66 percent of livestock rearing households described the general quality of livestock extension services as being good, 23 percent said they were average and 4 percent said they were very good and also 4 percent of livestock rearing households said the service was poor. Moreover, 3 percent of the livestock rearing households said the quality was not good (Chart 3.139).



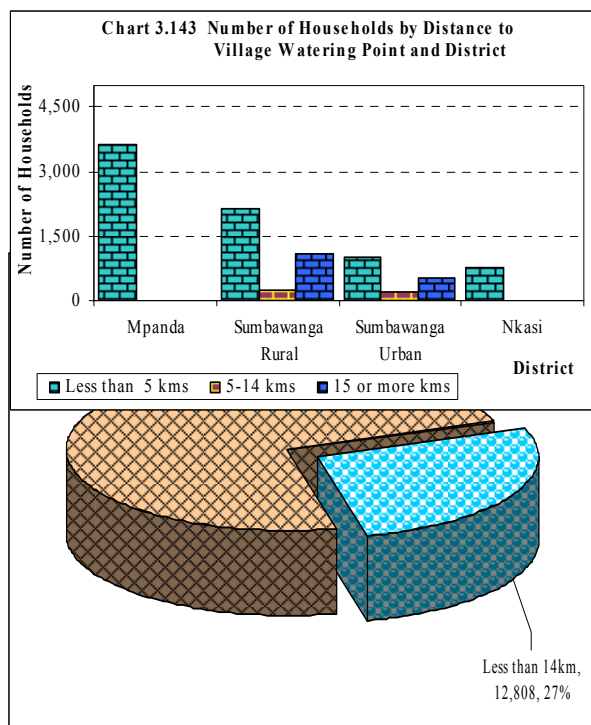
3.12.8.2 Access to Veterinary Clinic

Many veterinary clinics were located very far from livestock rearing households. About 73.1 percent of the livestock rearing households accessed the services, at a distance of more than 14 kilometers. Only 26.9 percent of them accessed the services within 14 kilometers from their dwellings (Chart 3.140). The most affected district was Sumbawanga Rural with almost all livestock rearing households (89%) accessing the services at a distance of more than 14 kms. Sumbawanga Urban district was the least affected because about 36 percent of the households could access the service at a distance of more than 14 kilometers. (Chart 3.141).

3.12.8.3 Access to Village Watering Points/dam

The number of livestock rearing households residing less than 5 kms from the nearest watering point was 7,525 (78.8% of livestock rearing households in Rukwa region) whilst 443 households (4.6%) resided between 5 and 14 kms. However, 1,587 households (16.6%) had to travel a distance of 15 or more kms to f the nearest watering point (Chart 3.142).

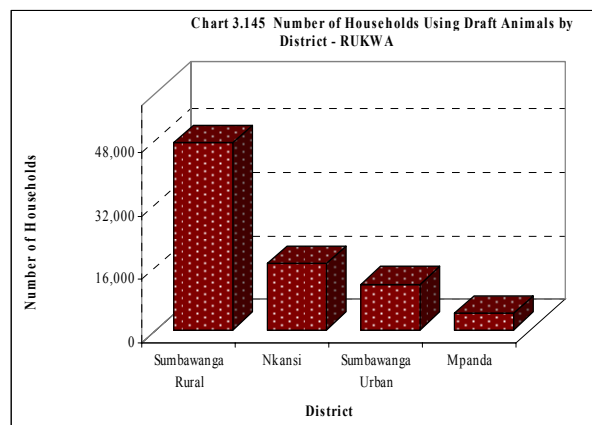
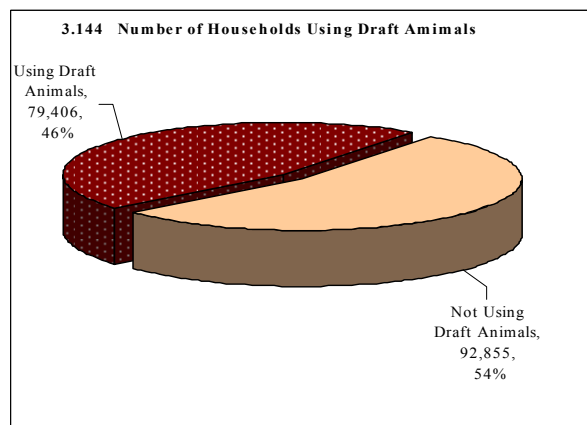
Mpanda and Nkansi districts had the best livestock water supply with all of livestock rearing households residing within 5 kms from the nearest watering point. This was followed by Sumbawanga Rural then Sumbawanga Urban districts. In Sumbawanga rural district about 38 percent of the livestock rearing households had to travel a distance of more than five kilometers to the nearest watering point (Chart 3.143).



3.12.9. Animal Contribution to Crop Production

3.12.9.1 Use of Draft Power

Use of draft animals to cultivate land in Rukwa region was relatively important with 79,406 households (46% of the total households in the region) using them (Chart 3.144).



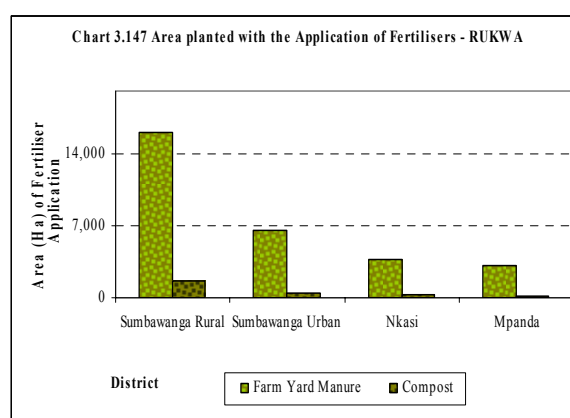
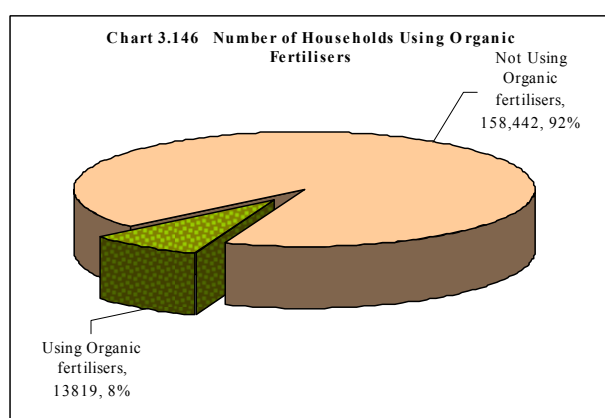
The number of households that used draft animals in Sumbawanga Rural was 47,115 representing 59 percent of the households using draft animals in the region, this was followed by Nkansi (16,622 households, 21%), Sumbawanga Urban (11,547 households, 15%) and Mpanda (4,121 households, 5%) (Chart 3.145 and Map 3.58).

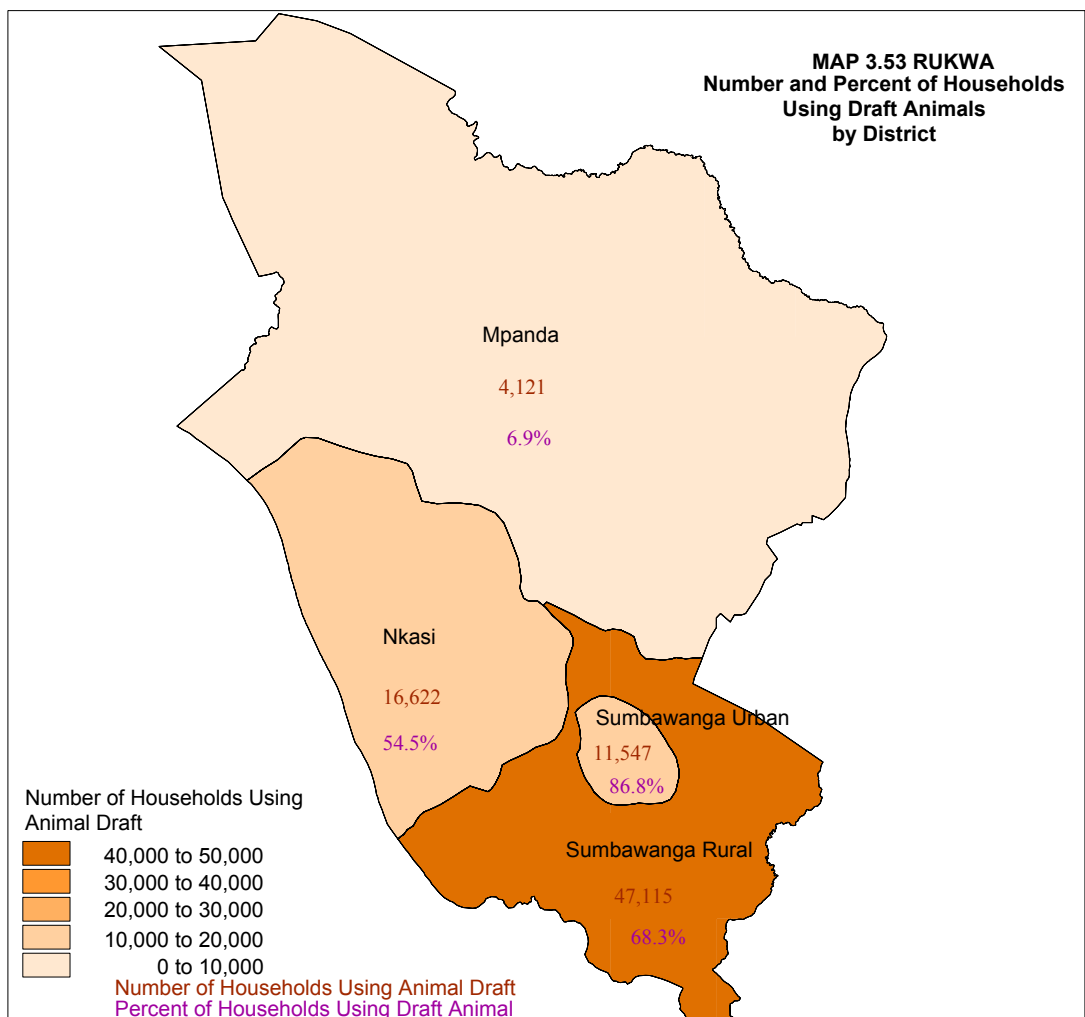
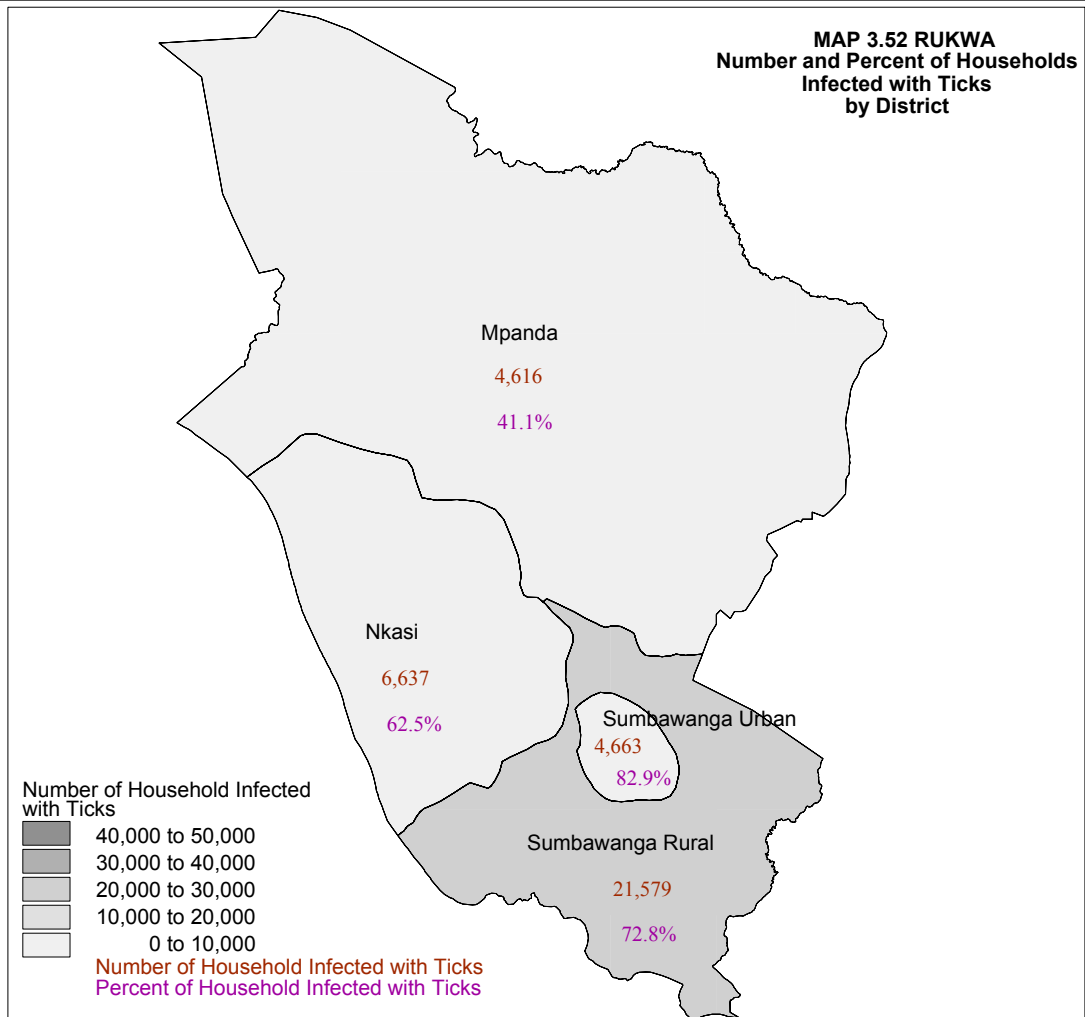
Proportionally, the district whose households used more draft animals was Sumbawanga Urban by (87%) followed by Sumbawanga Rural 68%) and Nkansi (55%). Mpanda district made the least use of draft animals (7%) of households only.

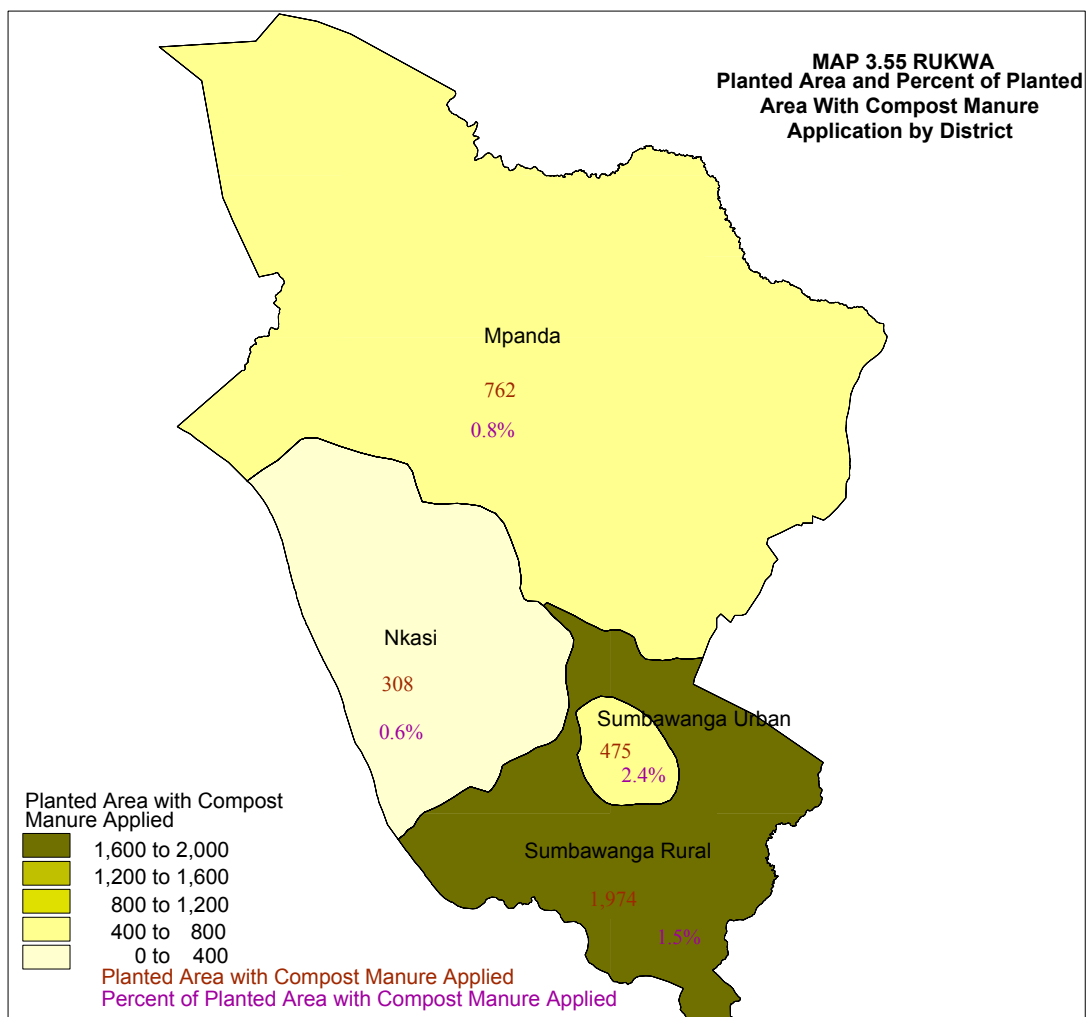
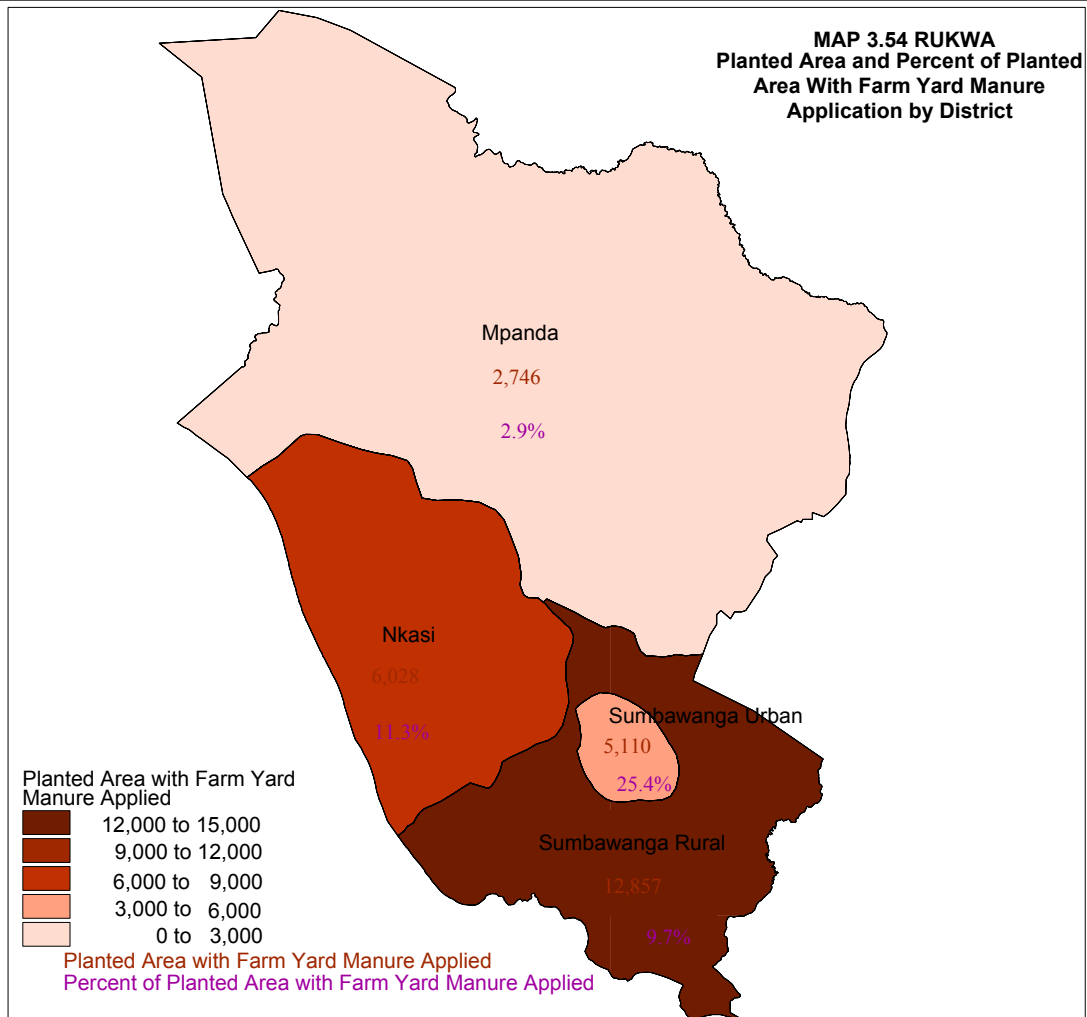
The region used 247,856 oxen that cultivated 178,167 hectares. This represents only 5.9 percent of the total number of oxen found on the Mainland. Out of this (140, 521 oxen) were used in sumbawanga rural, Nkasi (55,435 oxen), Sumbawanga Urban (29,683 oxen) and Mpanda (22,217 oxen) The largest area cultivated using oxen was found in Sumbawanga Rural district (259,293 ha, 58.9% of the total area cultivated using oxen).

3.12.9.2 Use of Farm Yard Manure

The number of households using organic fertilizers in Rukwa region was 18,756 (11% of total crop growing households in the region) (Chart 3.146). The total area applied with organic fertiliser was 30,877 hectares (73.9% of the total area applied with fertilisers or (10.2 % of the area planted with annual crops and vegetables in Rukwa region during the wet season) was applied with farm yard manure (Map 3.59).





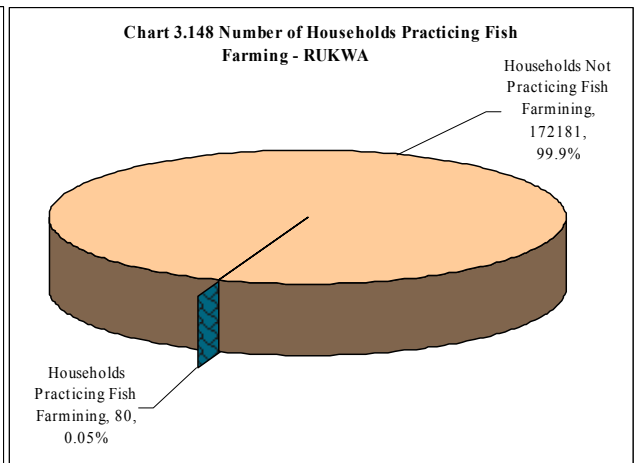
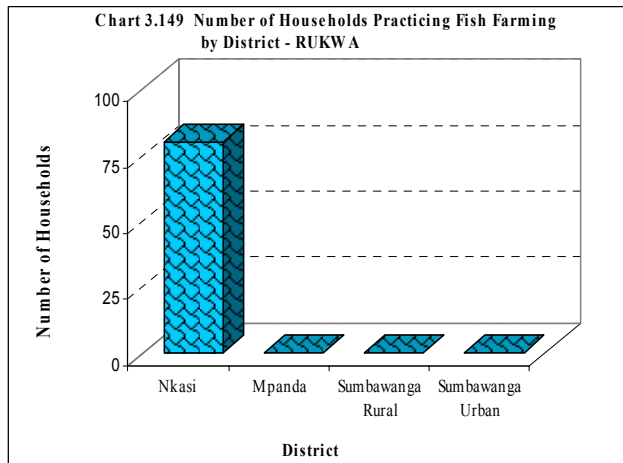


3.12.9.4 Use of Compost

Only 1,721 hectares (5.4% of the area of organic fertilizer application) was applied with compost. The largest area applied with compost manure was found in Sumbawanga Rural district with 16,082 hectares (67% of the total area applied with compost manure) followed by Sumbawanga urban (3,941 ha, 17%), Nkasi (313 ha, 12%) and Mpanda (109 ha, 4%) (Chart 3.147 and Map 3.60).

3.12.10 Fish Farming

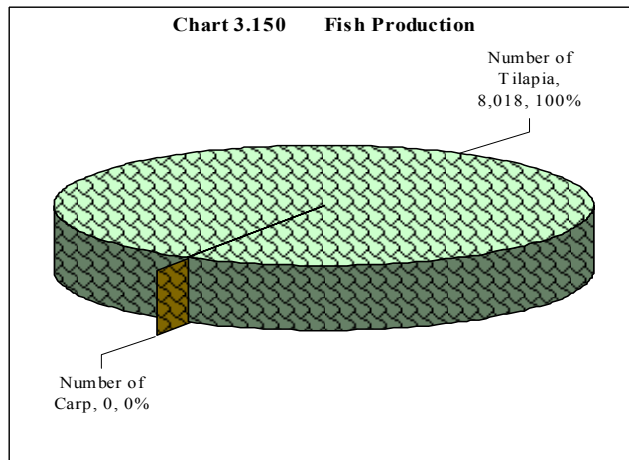
The number of households involved in fish farming in Rukwa region was 80, representing 0.05 percent of the total



agricultural households in the region (Chart 3.148 and Map 3.61).

Fish farming was practiced in Nkasi district only. No fish farming was practiced in any other district of Rukwa region. (Chart 3.149).

The main source of fingerlings was from the neighbours. All fish farming households in the region used the natural ponds.



The number of fish harvested in Rukwa region was 8,018 all of them being tilapia by type. Eighty (80) fish were sold to traders at farm.

3.13. POVERTY INDICATORS

The agricultural census collected data on poverty for the purpose of providing a base for tracking progress in poverty reduction strategies undertaken by the government.

3.13.1 Access to Infrastructure and Other Services

The results indicate that among the evaluated services, tarmac roads were a service located very far from most of the household's dwellings than any other service. It was located at an average distance of 185.2 kilometers from the agricultural household's dwellings. Other services and their respective average distances in kilometers from the dwellings were regional capital (155.5 km), hospitals (71.6 km), tertiary markets (65.5 km), secondary schools (25.1 km), secondary market (22.4 km), primary markets (16.3 km), health clinics (8 km), all weather roads (5 km), primary school (2.1) and feeder road (1.1) (Table 3.15).

Table 3.17: Mean Distances from Household Dwellings to Infrastructures and Services by District

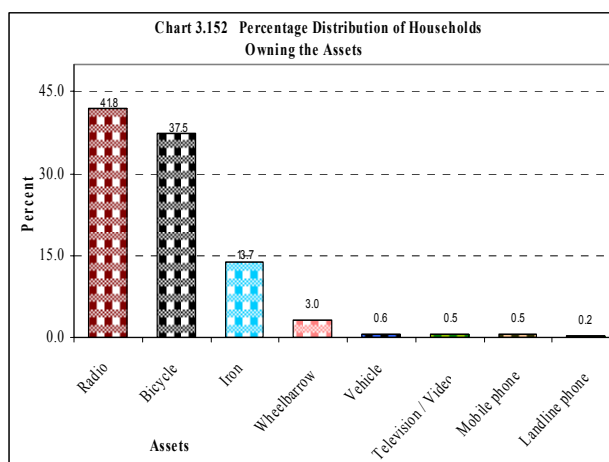
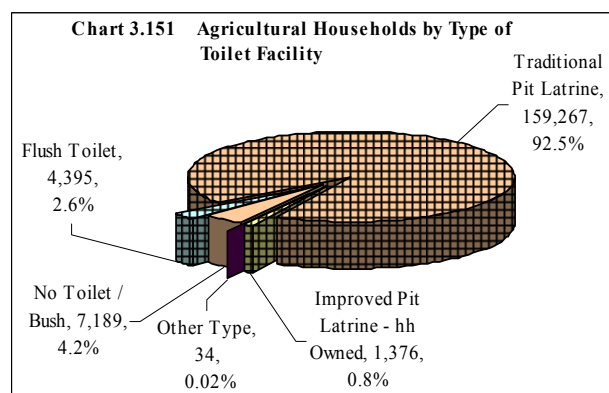
District	Mean Distance to										
	Secondary Schools	Primary Schools	All weather roads	Feeder Roads	Hospitals	Health Clinics	Regional Capital	Primary Markets	Secondary Market	Tertiary Market	Tarmac Roads
Mpanda	27.7	2.9	4.3	1.1	74.4	7.0	283.7	23.3	27.3	70.2	303.4
Sumbawanga Rural	20.9	1.7	5.6	0.9	90.3	9.7	92.4	8.4	19.1	81.4	129.1
Nkasi	36.9	1.9	6.7	1.5	48.6	6.8	109.2	22.6	24.6	42.9	145.8
Sumbawanga Urban	8.2	1.1	1.0	1.1	15.1	5.7	15.4	10.9	12.2	14.3	37.0
Total	25.1	2.1	5.0	1.1	71.6	8.0	155.5	16.3	22.4	65.5	185.2

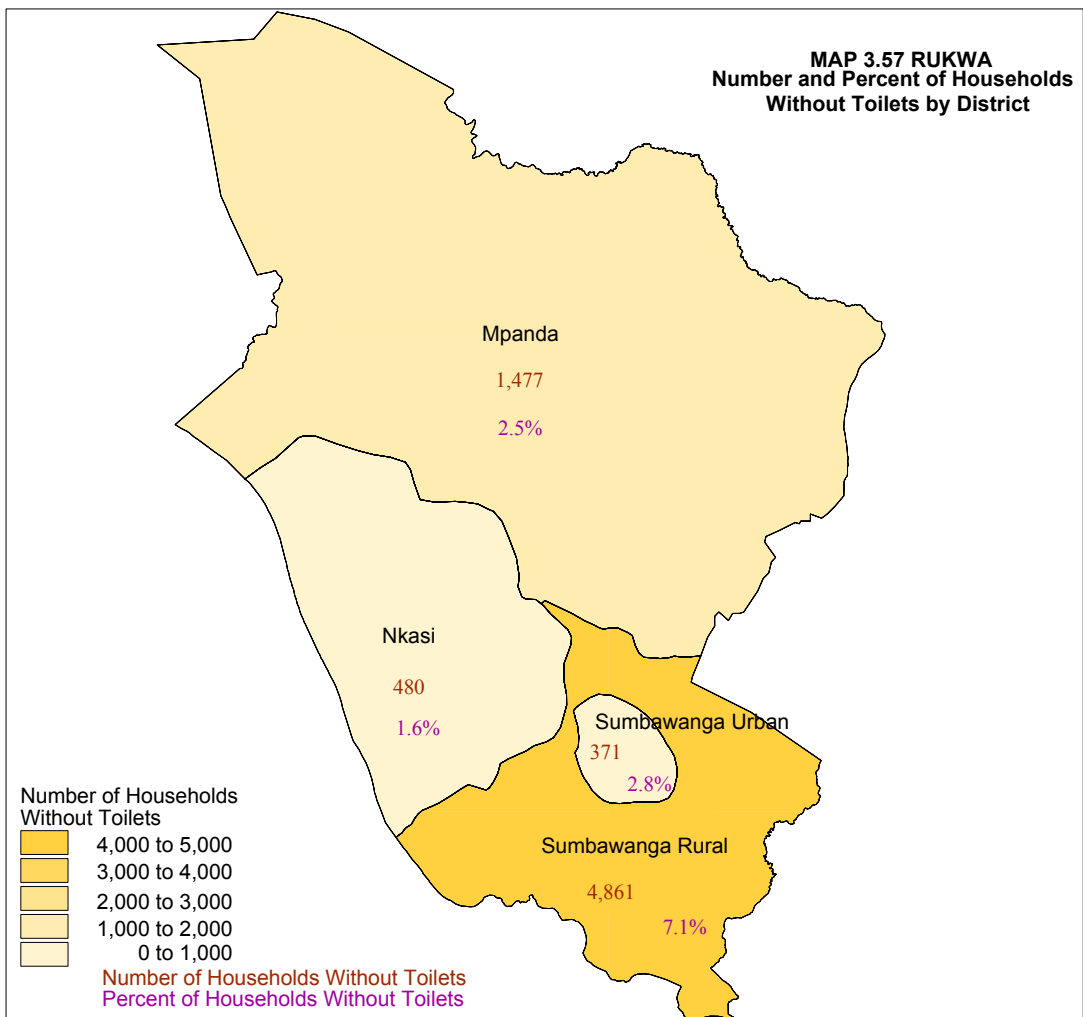
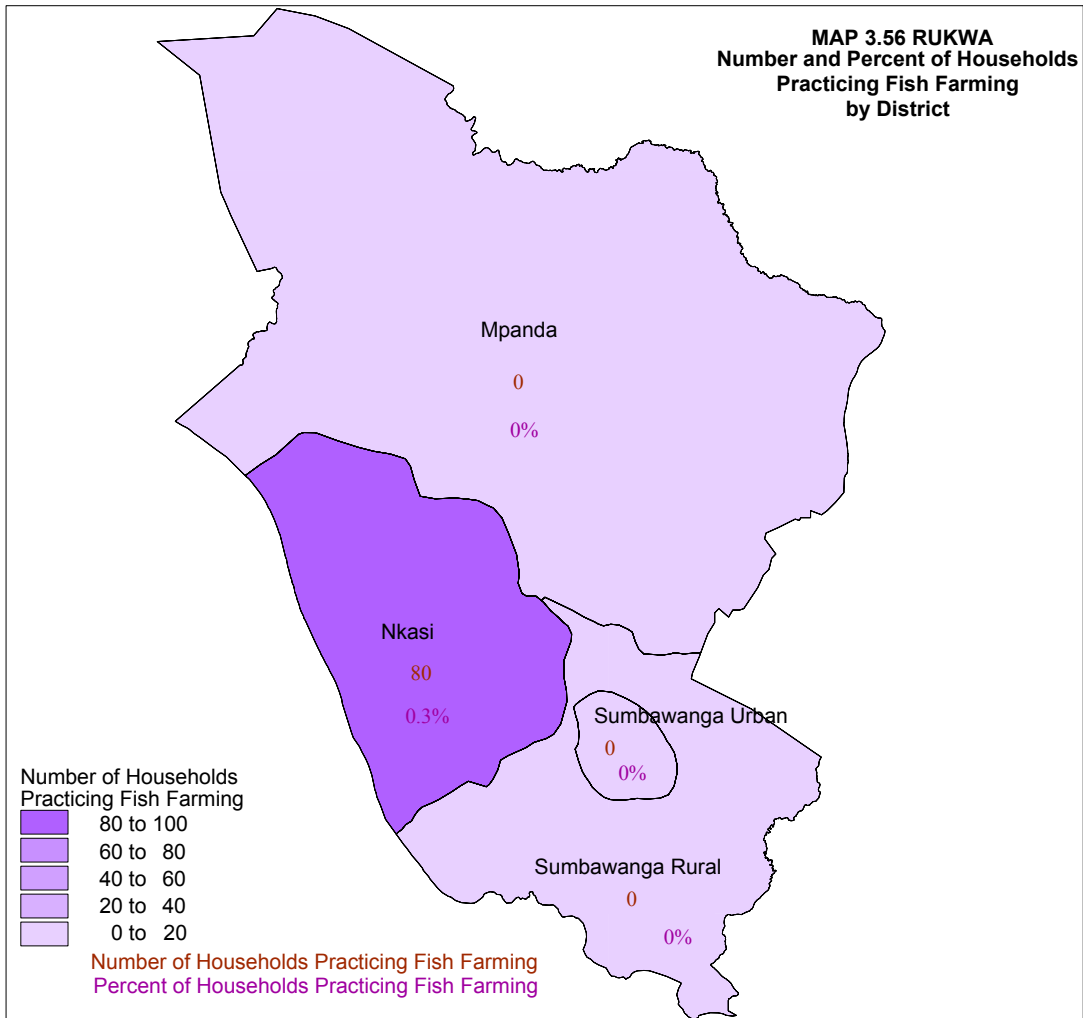
Only 3 percent of the agricultural households reported the available infrastructures and services as 'very good' whereas 29 percent reported them to be average. Twenty four percent of the agricultural households said the infrastructure and services were poor were, and 20 percent said they were 'no good'.

3.13.2 Type of Toilets

A large number of rural agricultural households used traditional pit latrines (159,267 households, 92.5% of all rural agricultural households). Other types of toilets were used as follows: flush toilets (4,395 households (2.6%), improved pit latrines (1,376 households, 0.8%) and other toilets facilities (34 households, 0.02%). However, 7,189 households or (4.2%) had no toilet facilities (Chart 3.151).

The distribution of the households without toilets within the region indicated that 67.6 percent of them were found in Sumbawanga Rural district and 20.5 percent were from Mpanda. The percentages of households without toilets in other districts were as follows Nkasi (6.7%) and Sumbawanga Urban (5.2%) Map 3.62).



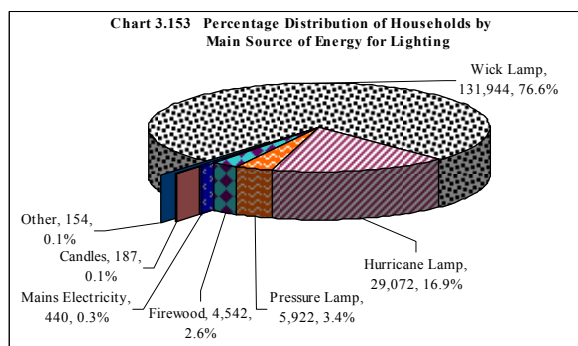


3.13.3 Household's Assets

Radios were owned by most rural agricultural households in Rukwa region with 72,043 households (41.8% of the agriculture households in the region) owning the asset this was followed by bicycle (64,577 households, 37.5%), iron (23,642 households, 13.7%), wheelbarrows (5,199 households, 3.0%), vehicles (1,070 households, 0.6%), television/video (849 households, 0.5%), mobile phones (784 households, 0.5%) and landline phones (267 households, 0.2%) (Chart 3.152).

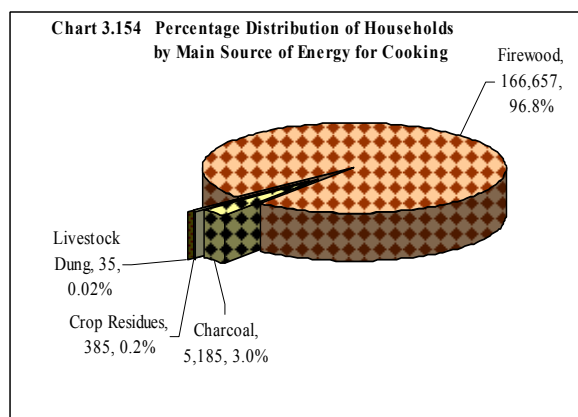
3.13.4 Sources of Lighting Energy

Wick lamp is the most common source of lighting energy in the region. with 76.6 percent of the total rural households using this source of energy followed by hurricane lamp (16.9%), pressure lamp (3.4%), firewood (2.6%), mains electricity (0.3%), candle (0.1%) and others (0.1%) (Chart 3.153).



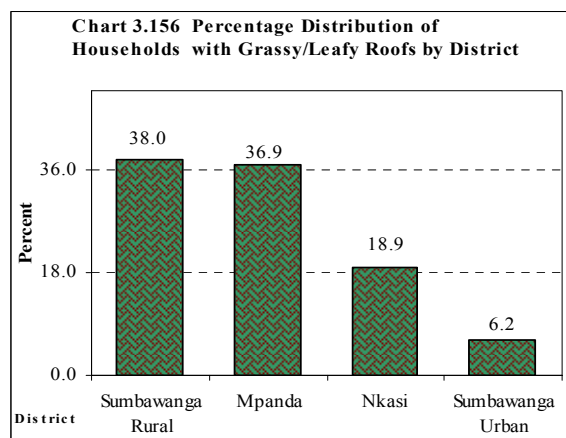
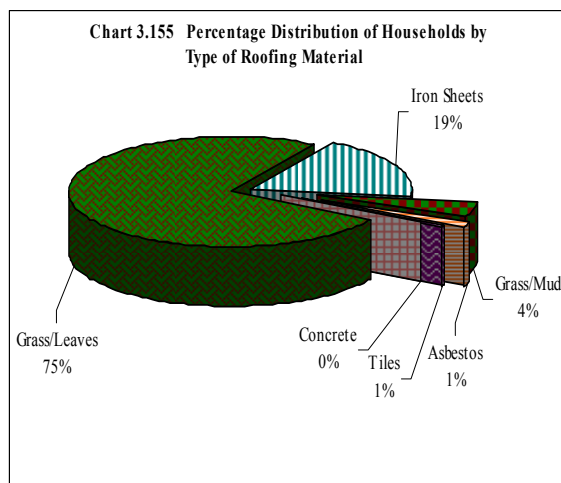
3.13.5 Sources of Energy for Cooking

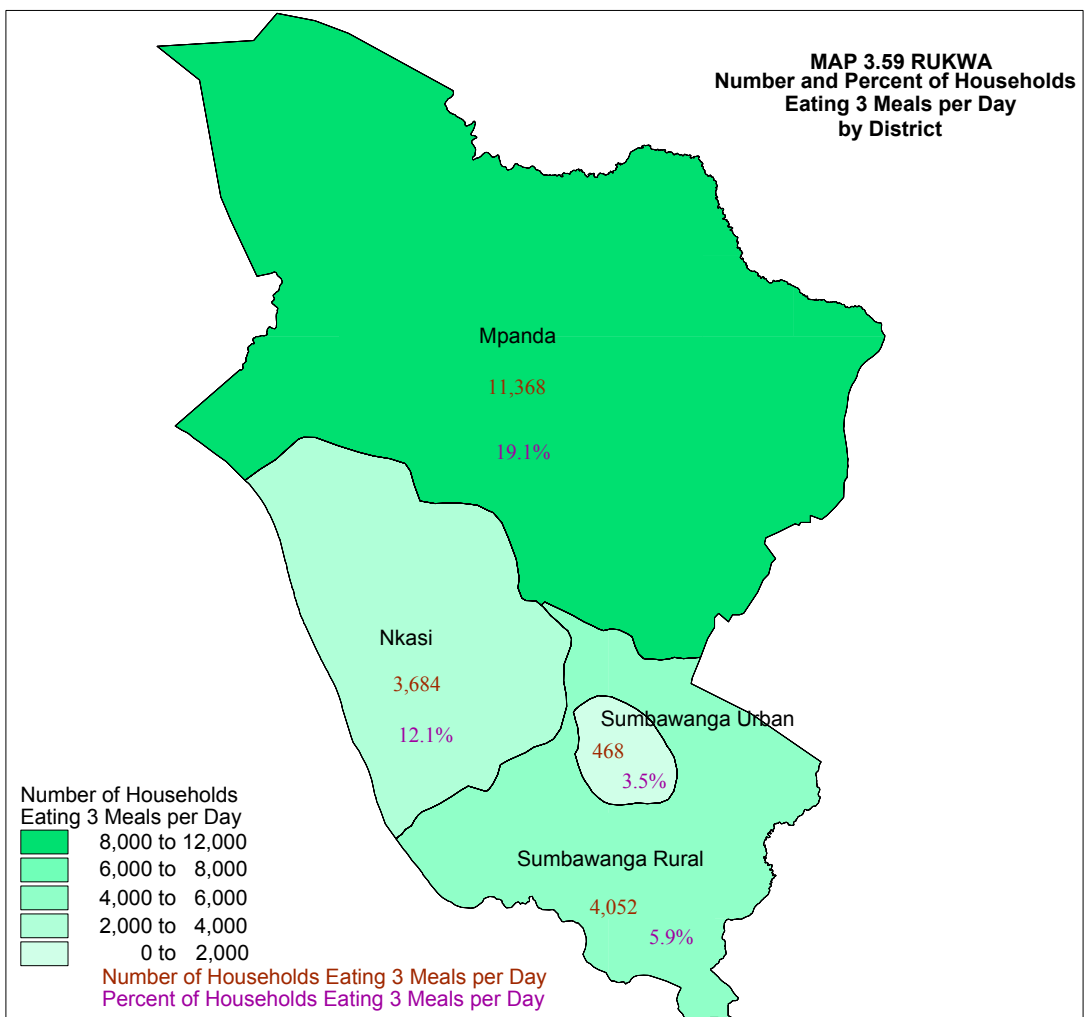
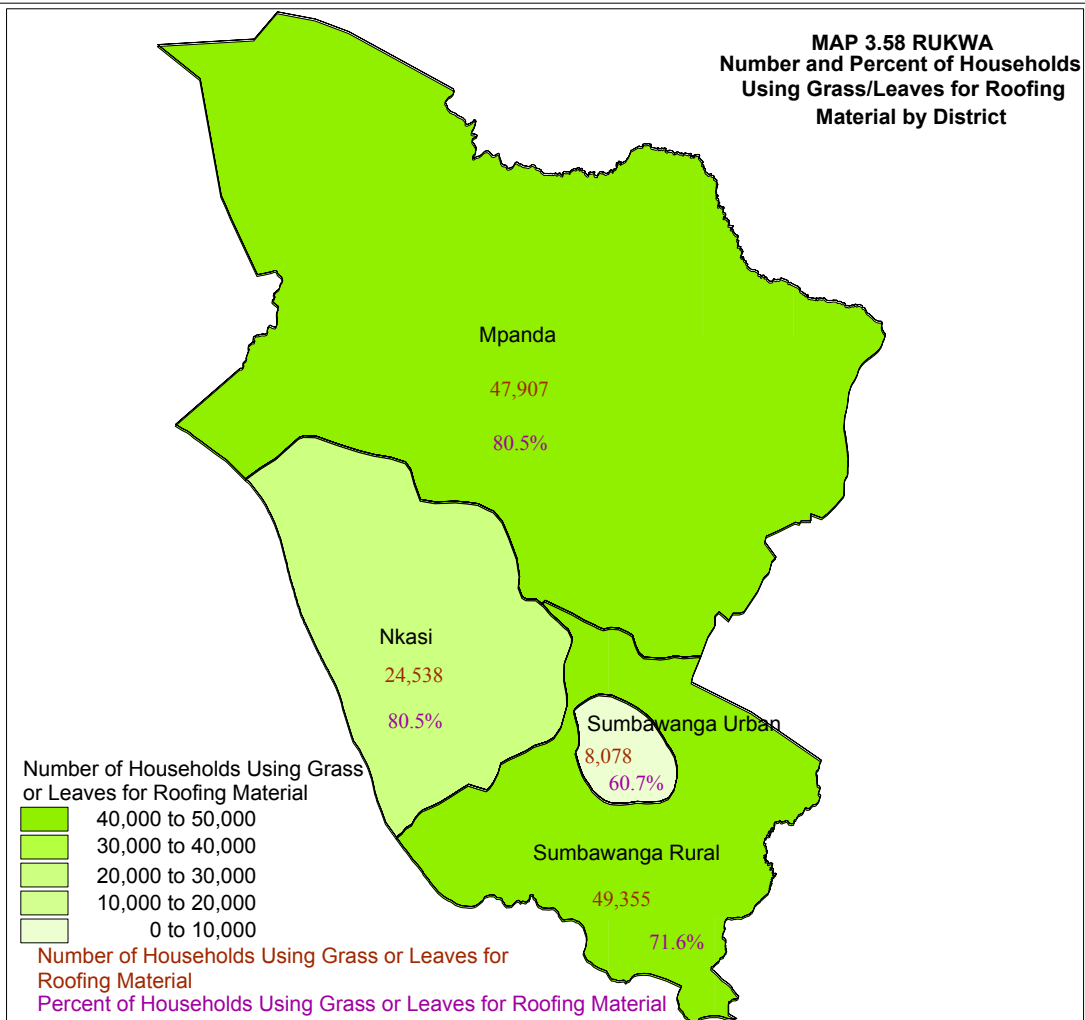
The most prevalent source of energy for cooking was firewood, which was used by 96.8 percent of all rural agricultural households in Rukwa region. This was followed by charcoal (3.0%), crop residues (0.2%) and livestock dung (0.02%) (Chart 3.154).

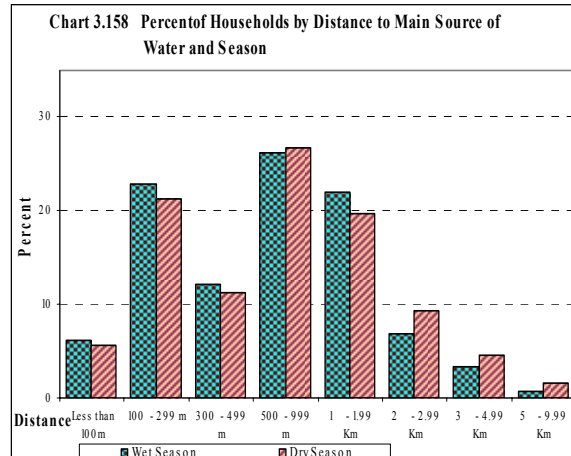
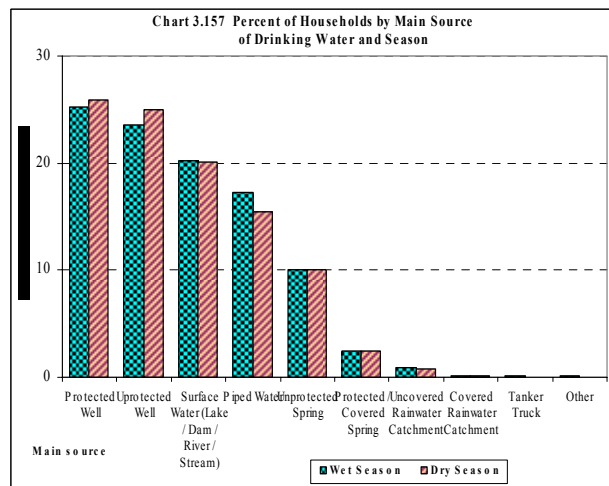


3.13.6 Roofing Materials

The most common material for roofing for the main dwelling was grass and/or leaves which used by 75.4 percent of the rural agricultural households. This was far followed by iron sheets (18.6%), grass/mud (4.0%), asbestos (1.3%), tiles (0.6%) and concrete (0.1%) (Chart 3.155). Proportionally, Mpanda and Nkasi districts had the highest percentage of households with grass/leaves roofing (80.5%) each followed by Sumbawanga Rural district (71.6%). Sumbawanga Urban district had the lowest percentage (60.7%) of households with grass/leaves as roofing material (23%) (Chart 3.156 and Map 3.63)



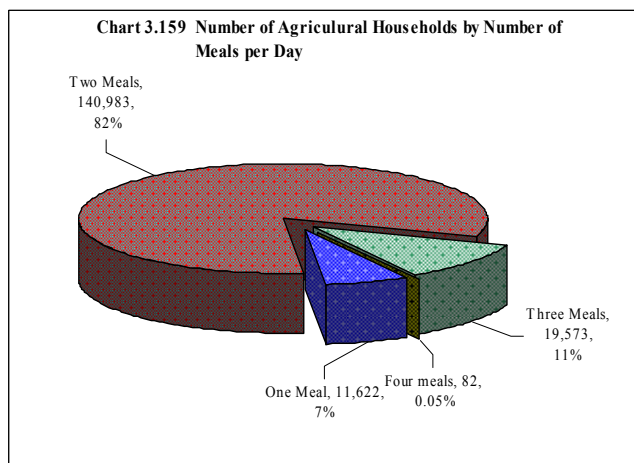




3.13.7 Access to Drinking Water

The main source of drinking water for rural agricultural households in Rukwa region was protected wells which were used by 25 percent of the households during both the wet and dry seasons. This was followed by unprotected wells (24% of households during wet season and 26 percent during dry season), surface water (20% of households during the wet season) and 15% in the dry season), piped water (17% of households in the wet season and 15% during dry season) and unprotected spring water (10% of households in both the wet and dry seasons, protected/covered spring (2.4% of households in wet season and 2.5% of households in dry season. The remaining sources had below 1 percent of households in both wet and dry seasons respectively. Chart 3.157)

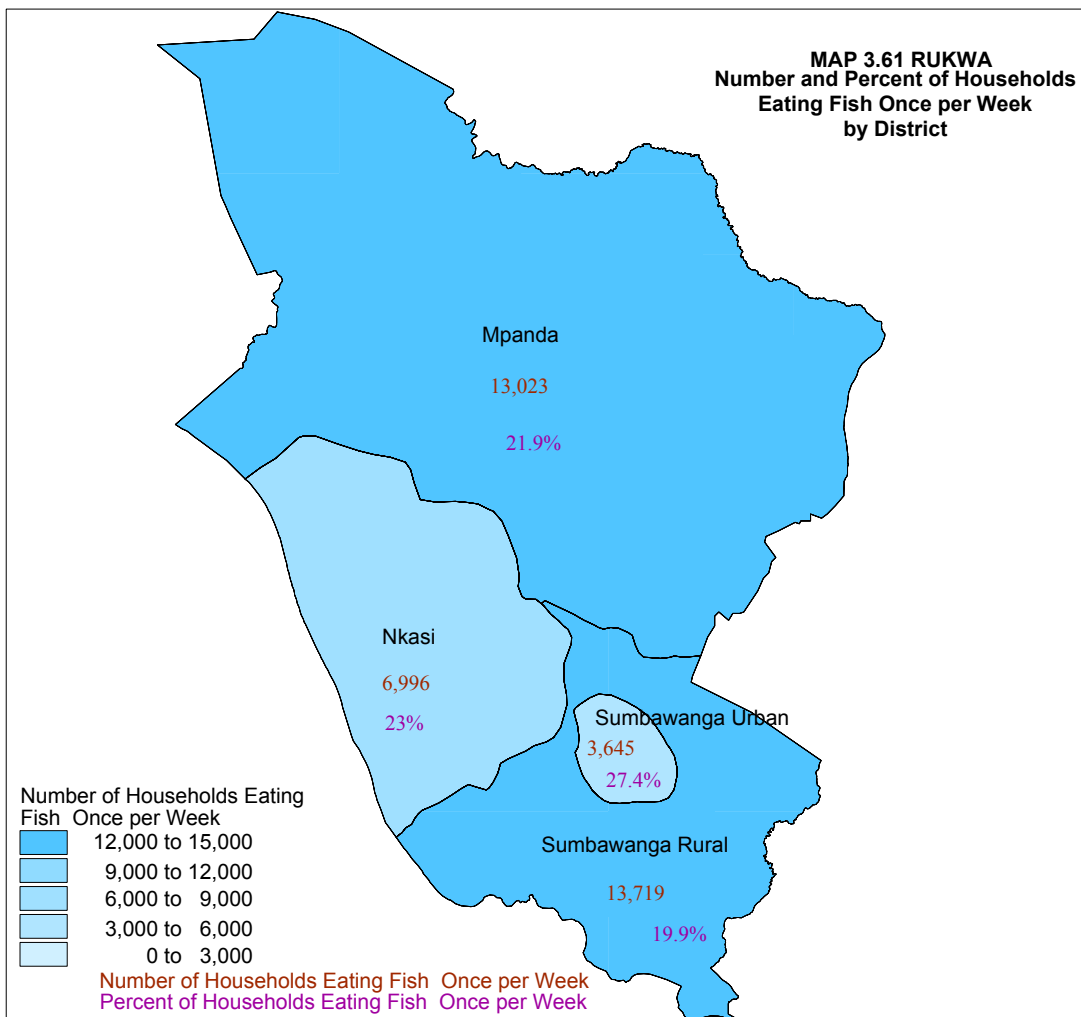
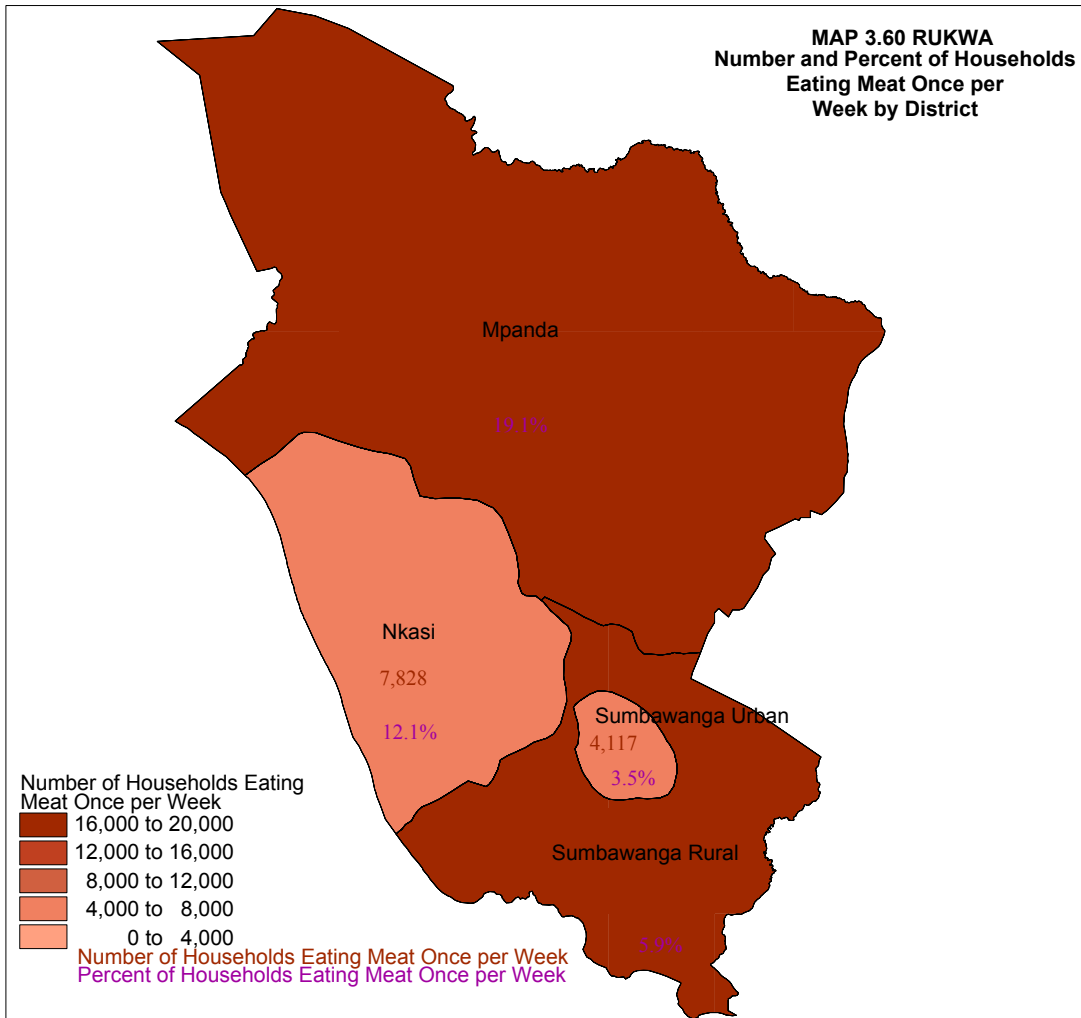
About 55 percent of the rural agricultural households in Rukwa region obtained drinking water within a distance of less than one kilometer during wet season compared to 46 percent of the households during the dry season. However, 45 percent of the agricultural households obtained drinking water from a distance of one or more kilometers during wet compared to 54 percent of households in the dry season. The most common distance from the source of drinking water was between 1 and 2 km (Chart 3.158).

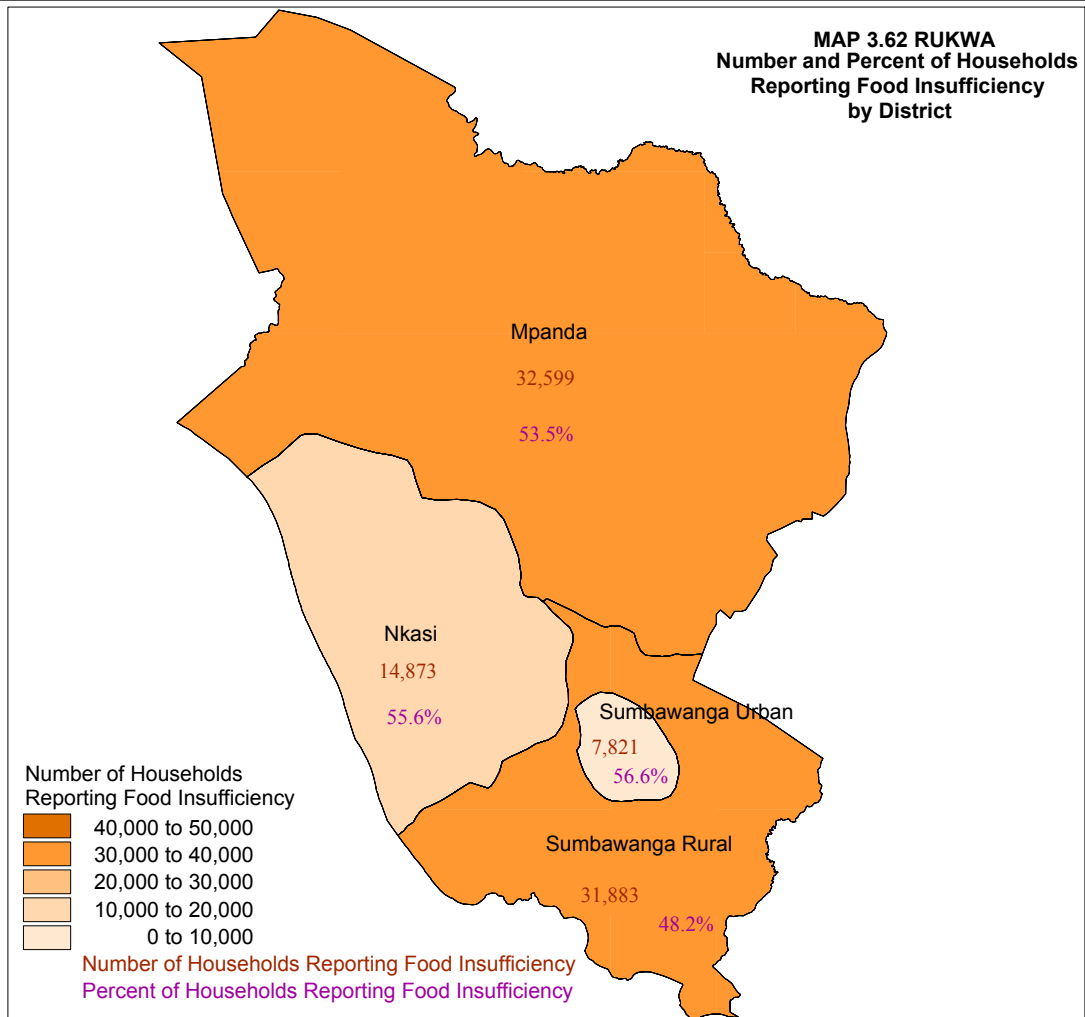


3.13.8 Food Consumption Pattern

3.13.8.1 Number of Meals per Day

The majority of households in Rukwa region normally had two (2) meals per day (81.8 percent of the households in the region). This was followed by three (3) meals per day (11.4%) and one (1) meal per day (6.7 percent). Only 0.05 percent of the households had (4) meals per day (Chart 3.159).





RUKWA PROFILES

This section presents the status of crops and livestock production, access to natural resources and services, demography and poverty for both the region as a whole and for each district.

4.1 Rukwa

Rukwa has over 340,000 hectares of land under crops and is dominated by annual cropping. It has one a moderate to high available land area per crop growing household and the smallest percent utilized. Of the 3.0 ha per crop growing household land available only 2 ha was utilized. The number of crop growing households is moderate to low. The region has no short rainy season.

Rukwa has a moderate planted area of cereals the majority of which is maize, however it is the fifth most important region in terms of the quantity produced. Beans and groundnuts are planted in moderate amounts and the region is the fourth most important in terms of quantity produced. Paddy is produced in moderate to small amounts compared to other regions and a small amount of sorghum is also produced. Cassava is produced in moderate to low amounts. Rukwa is not important for vegetable production; however a small amount of tobacco is grown. Rukwa has the smallest percentage of the total planted area of permanent crops in the country.

The area under irrigation in Rukwa is moderate to low compared to other regions and the number of households with irrigation has not changed for 10 years. For the small number of households with irrigation, the source of irrigation water is mostly from rivers, the method of obtaining water is largely by gravity and application of the irrigation water is mostly by flood. More than half of the land cultivation is done by oxen and the region is one of the few regions using non manual cultivation methods. Fertilizer application is almost non existent and little pesticides are used.

Rukwa stores a relatively large amount of maize mostly in sacks/open drums. A high percent of households in the region sells crops. Most processing is by neighbours machine and it also has one of the highest percentages of processing done by traders. Few households sell their processed crops, mostly to neighbours. Rukwa receives the second least amount of extension services per household.

The region has a small number of planted trees by smallholder households, and most of these are eucalyptus. It has a moderate number of households with erosion control/water harvesting facilities and most of them are for erosion control.

4.2.1 Mpanda

Mpanda district has a comparative large number of households in the region and it has one of the highest percent of households involved in smallholder agriculture in the region. Most smallholders are involved in crop farming only, followed by crop and livestock farming. It has no livestock only households or pastoralists.

The most important livelihood activity for smallholder households in Mpanda district is Annual Crop Farming, followed by tree/forest resources, off-farm income, livestock keeping, Permanent crops, remittances and fishing/hunting and gathering. However, the district has the lowest percent of households with no off-farm activities and the lowest percent of households with more than one member with off-farm income. Compared to other districts in the region, Mpanda has a relatively high percent of female headed households (49%) and it has the highest average ages of the household head. With an average household size of 6 members per household it is slightly above the average for the region. Mpanda has a

comparatively low literacy rate among smallholder households and this is reflected by the concomitant relatively low level of school attendance in the region. The literacy rates for the heads of household is also slightly lower than most of districts in the region.

It has the smallest utilized land area per household (2.0 ha) and the allocated area is not fully utilized indicating that there is low level of land pressure. The total planted area is greater than in other districts in the region due to the presence of good wet and dry seasons, however it has the second lowest planted area per household (1.5ha) attributed to the high number of smallholders in the district.

The district is moderately important for maize production in the region with a planted area of over 43,000 ha, however the planted area per household is the lowest in the region. Paddy production is not important as it was not grown in the district and the production of sorghum is very small. Mpanda is the only district in the region which did not grow wheat. Cassava production though small but it is higher accounting for 39 percent of the quantity harvested in the region. Mpanda is the only district in the region that did not grow Irish potatoes. The production of beans in Mpanda is the second highest in the region with a planted area of 10,255 ha. Oilseed crops are important in Mpanda and groundnuts were grown in the district. Vegetable production is important in the district. It has the second largest planted area with tomatoes but lowest in cabbage production, chilies were not grown in the district, it accounts for 27 percent of the tomato production, 8 percent of the cabbage production. Traditional cash crops (e.g. tobacco and cotton) are grown in very small quantities.

Compared to other districts in the region, Mpanda has a moderate planted area with permanent crops which is dominated by Lime/lemon (3,866 ha), banana (694 ha) and mangoes (392 ha). Other permanent crops are either not grown or are grown in very small quantities.

As with other districts in the region, most land clearing and preparation is done by hand, however very slightly more land preparation is done by oxen compared to most other districts.

The use of inputs in the region is very small, however district differences exist. Mpanda has the second largest planted area with improved seed in Rukwa region and this is due to the higher planted area of vegetables. The district has moderate to low planted area with fertilizers (Farm yard manure, compost and inorganic fertilizer), however most of this is inorganic manure. Compared to other districts in the region, Mpanda district has a lowest level of insecticide use. The use of fungicides, although small, was the highest compared to other districts. Virtually no herbicide was used. It has the smallest area with irrigation compared to other districts with 1,138 hectares of irrigated land. The most common source of water for irrigation is from rivers using hand buckets. Bucket and flood and are the most common means of irrigation water application and a very small amount of water hose irrigation is used. No sprinkler used for irrigation.

The most common method of crop storage is in sacks/open drums; however the proportion of households not storing crops in the district is lower than other districts in the region. The district has the largest number of households not selling crops, however for those who did not sell, the main reason for not selling is insufficient production. The lowest percent of households processing crops in Rukwa region is found in Mpanda district and is almost all done by using by neighbours Machines. The district also has a higher percent of households selling processed crops to neighbours than other districts and no sales are neither to market co-operatives, farmer's associations nor large scale farms. Although very small, access

to credit in the district is to both men and women and the main sources are co-operatives, traders/trade stores, and family friends and relatives.

A comparatively larger number of households receive extension services in Mpanda and all of this is from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming is not important in Mpanda district by having planted 2,251 trees only and is mostly senna spp with some eucalyptus and gravellis. The highest proportion of households with erosion control and water harvesting structures is found in Mpanda district and is mostly erosion control bunds however it also has the highest number of water harvesting bunds than other districts.

The district has the third largest number of cattle in the region and they are almost all indigenous. Goat production is the highest when compared to other districts; also, it has the largest population of sheep in the region. It has the second smallest number of pigs in the region but highest number of chickens. Mpanda is the only district in the region which did not have layers. Big number of ducks but small number of rabbits and donkeys both are found in the district. The largest number of households reporting Tsetse and tick problems was in Mpanda district and it had the largest number of households de-worming livestock. The use of draft animals in the district is very small. There was no any household in the district who did practice fish farming.

It has amongst the worst access to secondary schools, primary schools, health clinics and primary and secondary markets compared to other districts. However, it has one of the worst access to all weather roads and regional capital.

Mpanda district has the second lowest percent of households with no toilet facilities and it has the highest percent of households owning bicycles, vehicles and tv/video and mobile phones. It has the second lowest number of households using mains electricity in the region. The most common source of energy for lighting is the wick lamp and practically all households use firewood for cooking. The district has one of the largest percent of households with grass roofs with 16.4 percent of households having iron sheets. The most common source of drinking water is from protected wells. It has the lowest percent of households having two and second lowest district with households having one meal per day compared to other districts and the highest percent with 3 meals per day. The district had the lowest percent of households that did not eat meat but highest number of households that did not eat fish during the week prior to enumeration; however most households seldom had problems with food satisfaction.

4.2.2 Sumbawanga Rural

Sumbawanga Rural district has the largest number of households in the region and it has a high percentage of households involved in smallholder agriculture. Most smallholders are involved in crop farming only, followed by crop and livestock farming. It has a very large number of livestock only households and no pastoralists were found in the district.

The most important livelihood activity for smallholder households in Sumbawanga Rural district is Annual Crop Farming, followed by tree/forest resources. The district has the fourth highest percent of households with no off-farm activities although it has the fourth highest percent of households with more than one member with off-farm income. Compared to other districts in the region, Sumbawanga Rural has a relatively high percent of female headed households (23%) and it has

one of the lowest average age of the household head in the region. With a household size of 5 members per household it is average for the region. Sumbawanga Rural has a comparatively high literacy rate among smallholder households and this is reflected by the district having the highest level of school attendance in the region.

It has a highest utilized land area per household (2.7 ha) and 79.1 percent of the allocated area is currently being utilized. The district has the largest planted area in the region and the largest planted area per household (0.8ha in the wet season).

The district is very important for maize production in the region with a planted area of over 65,900 ha, and the planted area per maize growing household is also moderate for the region. The district has the second largest planted area of paddy in the region with 11,605 hectares. Sorghum is also grown in the district. Cassava production is moderate to high, accounting for 25.2 percent of the quantity harvested in the region. The district has a very small planted area of Irish potatoes (49 ha). The production of beans in Sumbawanga Rural district is higher with a planted area of 17,142 ha. Sumbawanga Rural district has the second largest groundnut planted area in Rukwa region with a planted area per groundnut growing household of 0.27 ha. Vegetable production is moderately important in the district. Although small, it has the largest planted area with tomatoes and cabbage and chilies (245 ha and 60 ha respectively). A traditional cash crop (e.g. tobacco) was grown in very small quantities. No cultivation of cotton in the district

Compared to other districts in the region, Sumbawanga Rural has the largest planted area with permanent crops which is dominated by sugarcane (1,356 ha), banana (758 ha) and Mango (155 ha).

As with other districts in the region, most land clearing is done by hand slashing; however there is a substantial area with no land clearing indicating bare ground before planting. Practically all Land preparation is done by hand, however a very small amount of land preparation is done by tractor.

The use of inputs in the region is very small, however district differences exist. Sumbawanga Rural has the largest planted area with improved seed in the region as well as the highest proportion of households using improved seeds. Though small, the district has the second highest planted area with fertilizers (Farm yard manure, compost and inorganic fertilizer), and most of this is with farm yard manure. Compared to other districts in the region, Sumbawanga Rural district has a moderate level of insecticide use. The use of fungicides and herbicides is low. It has the largest area with irrigation compared to other districts with 9,983 ha of irrigated land. The most common source of water for irrigation is from rivers using gravity methods. Flood is the most common means of irrigation water application followed by bucket/watering can and a very small amount of water hose is used.

The most common method of crop storage in Sumbawanga Rural district is in sacks/open drums, however the proportion of households not storing crops is slightly above for the region. Sumbawanga Rural has the highest number of households selling crops, however for those who did not sell, the main reason for not selling is insufficient production. Sumbawanga Rural is among the districts with the lowest percent of households processing crops in Rukwa region and is almost all done by neighbours machine. The district also has the second highest percent of households selling processed crops to neighbours as well as to traders at farm than other districts and no sales is to marketing co-operatives or large scale farms. Access to credit in the district though small but it was second in the region.

A comparatively larger number of households receive extension services in Sumbawanga Rural district and all of this is from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming is relative important in Sumbawanga Rural (with 3,551 planted trees) and is mostly Eucalyptus, jacaranda and senna spp. The highest proportion of households with erosion control and water harvesting structures is found in Sumbawanga Rural district and is mostly erosion control bunds and water harvesting bunds, however it also has the number of drainage ditches, tree belts dams terraces and vetiver grasses.

The district has the largest number of cattle in the region and they are almost all indigenous. Goat production is moderate compared to other districts; however it has the second largest population of sheep in the region. It has the largest number of pigs in the region and a moderate number of chickens. Some ducks, rabbits and donkeys are also found in the district. A number of households reported tsetse and tick problems and it has the second largest number of households de-worming livestock. A small number of households use draft animals, however it is the highest in the region. No any households in the district who did practice fish farming.

It has amongst the best access to feeder roads, primary schools, all weather roads, primary markets and health clinics compared to other districts. However, it has one of the worst accesses to tarmac roads.

The percentage of households without toilet facility in Sumbawanga Rural district is comparatively low. It is amongst the districts with the highest percent of households owning wheel barrows, vehicles, bicycles, tv/video and mobile phones. It has the largest number of households using mains electricity in the region. The most common source of energy for lighting is the wick lamp and practically all households use firewood for cooking. The roofing material for most of the households in the district is grass/leaves (72%), however it has the second highest percent of households with iron sheet roofing (19%) compared to most other districts. The most common source of drinking water is from unprotected springs. It is one of the districts with the moderate percent of households having three meals per day. The district had one of the lowest percent of households that did not eat meat or fish during the week prior to enumeration and most households seldom had problems with food satisfaction.

4.2.3 Nkasi

Nkasi district has the third largest number of households in the region and it has moderate to higher percent of households involved in smallholder agriculture in the region. Most smallholders are involved in crop farming only, followed by crop and livestock farming. It one of the districts with very small number of livestock only households and no pastoralists were found in the district.

The most important livelihood activity for smallholder households in Njkasi district is Annual Crop Farming, followed by tree/forest resources, off-farm income, livestock keeping, fishing/hunting/gathering, remittances and permanent crops. However, the district has the highest percent of households with no off-farm activities and the second lowest percent of households with more than one member with off-farm income. Compared to other districts in the region, Nkasi a relatively high percent of female headed households (13%) and it has one of the highest averages of the household head in the region. With an average household size of 5 members per household it is the average for the region. Nkasi has a comparatively

high literacy rate among smallholder households and this is reflected by the concomitant relatively high level of school attendance in the region.

The land area utilized per household (2.4 ha) is above the average for the region which is estimated at 2.0 hectares. 75 percent of the allocated area is currently being utilized which is moderate to high for the region.

Sumbawanga Rural and Nkasi utilizing 2.7 and 2.5 ha per household respectively. The smallest land area utilised per household was found in Mpanda and Sumbawanga Urban with (2.0 ha) each. The percentage utilized of the usable land per household was highest in Sumbawanga Urban (86.2%) and lowest in Mpanda (63.2%). Seventy three percent of the total land available to smallholders was utilised. Only 27 percent of usable land available to smallholders was not

The district is moderately important for maize production in the region with a planted area of over 28,000 ha and the planted area per household is 1.03 ha which is slightly above of average for the region. Paddy production is not important with a planted area of only 1,416 hectares; however it is the third highest in the region. Sorghum, Irish potatoes and wheat are all produced in the district. The district has the second largest planted area of cassava accounting for 27 percent of the cassava planted area in the region. The production of beans in Nkasi is second lower in the region with a planted area of 6,810ha. Oilseed crops are relative important in Nkasi with 8.1 percent of the groundnuts grown in the district. Vegetable production is not important and tobacco was grown in the district.

Permanent crops are very important in Nkasi district (24.6% of the total permanent crop planted area in Rukwa region) and are more important than any other district in the region. The most prominent permanent crops in the district include mangoes (2,020 ha), sugarcane (74 ha), bananas (66 ha) and coconuts (16 ha). It has one of the lowest area with oranges in the region (4 ha). Other permanent crops are either not grown or are grown in very small quantities.

As with other districts in the region, most land clearing is done by hand slashing, however it has the largest area cleared by burning and a relatively small area of bare ground before planting. Practically all Land preparation is done by hand, however a very small amount of land preparation is done by oxen and tractor.

The use of inputs in the region is very small, however district differences exist. Muheza has the smallest planted area with improved seed in Rukwa region and this is due to the dominance of permanent crops which do not need frequent planting. The district also has a small planted area with fertilizers (Farm yard manure, compost and inorganic fertilizer), and practically all is with farm yard manure. Compared to other districts in the region, Muheza district has the smallest area of insecticide and fungicide use and the use of herbicides is relatively small. It has one the smallest area with irrigation in the region with 1,146 ha of irrigated land. The most common source of water for irrigation is from rivers and wells and almost all water application is by using flood and hand buckets.

The most common method of crop storage is in Nkasi is by using sacks or open drums and locally made traditional cribs, and the proportion of households not storing crops in the district is moderate to low for the region. The district has the third highest percent of households selling crops, however for those who did not sell, the main reason for not selling is insufficient production. Nkasi district has a high percent of households processing crops in the region and is almost all done by neighbour machines; however, there was no any household in the district who did process crops by trader. Small quantities of processed crops are sold and very few households have access to credit.

A moderate number of households receive extension services in Nkasi district and almost all of this is from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming is not important in Nkasi district (with 3,148 planted trees) and is mostly Eucalyptus spp with some Senna Spp and Jacaranda Spp. The lowest proportion of households with water harvesting bunds is found in Nkasi district and it also has the third highest number of erosion control bunds.

The district has a moderate number of cattle in the region and they are almost all indigenous. Goat and sheep production is moderate compared to other districts. It has the second largest number of pigs in the region and the second lowest number of chickens, all of which are indigenous. Virtually no broilers chicken was found in the district. The district has one of the smallest number of ducks, and a small number of rabbits and turkeys are found in the district. A moderate number of households reported tsetse and problems in Nkasi district. A relative small amount of de-worming of livestock is practiced in the district. Draft animals are used in the district. Fish farming is practiced by a small number of households; however it is the only district which did practice fish farming in the region.

It has amongst the best access to feeder roads, all weather roads, and health clinics compared to other districts. However, it has one of the worst accesses to tarmac roads and the regional capital.

The percentage of households without toilet facility in Nkasi district is below the average for the region; however it has the lowest percent of households with no toilet facilities. It has the lowest percent of households owning vehicles and second highest owing tvs/video but NO land line phones. It has the second highest number of households using mains electricity in the region and the most common source of energy for lighting is the wick lamp and practically all households use firewood for cooking. The district has one of the highest percent of households with grass roofs (81%) and only 16 percent of households have iron sheet roofing. The most common source of drinking water is from unprotected wells. Forty four percent of the households in the district reported having one or two meals per day and virtually 82 household reported having more than three meals per day. The district had a moderate percent of households that did not eat meat or fish during the week prior to enumeration and most households seldom had problems with food satisfaction.

4.2.4 Sumbawanga Urban

Sumbawanga Urban district has an average number of households for the region and it has the smallest percent of households involved in smallholder agriculture in the region. Most smallholders are involved in crop farming only, followed by crop and livestock farming. It has a very small number of livestock only households and no pastoralists were found in the district.

The most important livelihood activity for smallholder households in Sumbawanga Urban district is annual crop farming followed by trees/forest resources. It has the second highest percent of households with no off-farm activities and the highest percent of households with more than one member with off-farm income. Compared to other districts in the region, Sumbawanga Urban district has a relatively high percent of female headed households (13%) and it has one of the highest average ages of the household head. With an average household size of 5.4 members per household it is average for the region. Sumbawanga Urban district has a comparatively high literacy rate among smallholder households and this is reflected by the concomitant relatively high level of school attendance in the region.

It has the second smallest utilized land area per household (2.0 ha) and only 86.2 percent of the allocated land area is utilized. The total planted area is the smallest in the region however it has the second lowest planted area per household (0.61ha in the wet season).

Sumbawanga Urban district is not important for maize production in the region with a planted area of only 12,341 ha, and the planted area per household is among the lowest in the region. Paddy production is also not important as there was no any cultivation of paddy in the district hectares and the production of sorghum is small.

Cassava and bean production in Rukwa district was small and Irish potato and wheat are also grown. Oilseed crops and vegetables are not important in the district however, whilst the district has one of the smallest planted area with tomatoes it is the first in terms of tomato planted area per household. Traditional cash crops (e.g. tobacco and cotton) are not grown in the district.

Compared to other districts in the region, Sumbawanga Urban district has the smallest planted area with permanent crops (5.7% of total permanent crop planted area) which is dominated by sugarcane (346 ha), banana (272ha), A small area of orange and coconut are grown. Apart from a minor amount of coffee, lime/lemon and guavas no other permanent crop is grown.

As with other districts in the region, most land clearing and preparation is done by hand, however the smallest land preparation done by oxen is found in the district.

As with other districts in the region, land clearing by hand slashing is predominant and practically all land preparation is by hand.

The use of inputs in the region is very small, however district differences exist. Sumbawanga Urban district has the smallest planted area with improved seed; however it has the lowest planted area per household in the region. The district also has the second smallest percent of planted area with fertilizers (Farm yard manure, compost and inorganic fertilizer), and most of this is with farm yard manure. Compared to other districts in the region, Sumbawanga Urban district has the second highest area planted with insecticide but has the lowest percent of the total planted area in the region. The percent of planted area with fungicides is amongst the highest in the region and is the lowest for herbicides. It has one of the largest areas of irrigation 2,830 ha. The most common source of water for irrigation is from rivers using gravity. Floods and watering cans are the most common means of irrigation water application.

The most common method of crop storage is in sacks/open drums; however the proportion of households not storing crops in Sumbawanga Urban district is one of the highest in the region. The number of households selling crops in the district is also among the biggest in the region, however for those who did not sell, the main reason for not selling is insufficient production. The second biggest percent of households processing crops in the region is found in Sumbawanga Urban district and processing is mostly done by neighbours machine. The district has the smallest number of households processing crops on farm by machine. It also has the lowest number of households processing crops on farm by hand. Most households that sell crops sell to farmers association, traders on farm and large scale farms, but, no sales on local market/trade stores, secondary market nor marketing co-operatives. Access to credit in the district is very small.

A very small number of households receive extension services in Sumbawanga Urban district and almost all of this is from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming though small but it is important in Sumbawanga Urban district (with 34,199 planted trees) and almost all of them are Eucalyptus Spp. The largest proportion of households in Sumbawanga Urban district use terraces for erosion control.

Sumbawanga Urban district has the smallest number of cattle in the region and most of them are indigenous. It is one of the districts with the least number of goats in the region, however the district has the highest density (87 head per km²) Rukwa is also one of the districts with the smallest number of sheep, pigs and chicken, however it has the largest number of improved chickens (layers) in the region, broilers are not raised in the district. Small numbers of ducks, rabbits, turkeys and donkeys are also found in the district. A moderate number of households reported Tsetse and tick problems in Sumbawanga Urban district and it had one of the smallest numbers of households de-worming livestock. The use of draft animals in the district is very small and very few households practice fish farming.

It is amongst the districts with the best access to secondary schools, primary schools, feeder roads, all weather roads, health clinics, hospitals, regional capital, tarmac roads and tertiary markets compared to other districts. However, it has the worst access to primary and secondary markets.

Sumbawanga Urban district has though small number of households with no toilet facilities but it is the second highest in the region. The district has the highest percent of households owning wheel barrows, vehicles and television/video, land line and mobile phones and it has the second highest percent of households with radio, bicycles and irons. It has one of the smallest numbers of households using mains electricity in the region. The most common source of energy for lighting is the wick lamp and practically all households use firewood for cooking. The district has the lowest percent of households with grass roofs with 33 percent of households having iron sheets. The most common source of drinking water is piped water and it has the highest percent of households having one meal per day and third with households having two meals per day compared to other districts and the fourth lowest percent with 3 meals per day. The district had the second highest percent of households that did not eat meat during the week prior to enumeration but has the second lowest percent of households that did not eat fish. Most households seldom had problems with food satisfaction.

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NUMBER OF AGRICULTURAL HOUSEHOLDS

2.1 TYPE OF AGRICULTURE HOUSEHOLD: Number of Agricultural Households by type of household and District, the 2002/03 Agriculture Year

Agriculture, Non Agriculture and Urban Households									
District	Rural Households Involved in Agriculture	% of Total Rural Households	Rural Households NOT Involved in Agriculture	% of Total Rural Households	Total Rural Households	% of Total Rural Households	Urban Households	% of Total Rural Households	Total Number of Households (From 2002 Pop Census)
Mpanda	59,533	80	1,212	2	60,745	82	13,476	18	74,221
Sumbawanga	68,935	90	2,874	4	71,809	94	4,892	6	76,701
Nkasi	30,483	73	4,048	10	34,531	83	6,945	17	41,476
Sumbawanga	13,309	44	336	1	13,645	45	16,825	55	30,470
Total	172,261	77	8,469	4	180,730	81	42,138	19	222,868

2.2 TYPE OF AGRICULTURE HOUSEHOLD: Number of Agriculture Households By Type of Holding and District, 2002/03 Agricultural Year

District	Type of Agriculture Household								Total Number of Agricultural Households	Total Number of Households Growing Crops	Total Number of Households Rearing Livestock
	Crops Only		Livestock Only		Crops & Livestock		Total				
	Number	%	Number	%	Number	%	Number	%			
Mpanda	47,900	42	0	0	11,633	20	59,533	35	59,533	59,533	0
Sumbawanga	38,769	34	416	100	29,751	51	68,935	40	68,935	68,520	416
Nkasi	19,786	17	0	0	10,697	19	30,483	18	30,483	30,483	0
Sumbawanga	7,614	7	0	0	5,695	10	13,309	8	13,309	13,309	0
Total	114,069	100	416	100	57,776	100	172,261	100	172,261	171,845	416

HOUSEHOLDS DEMOGRAPHYS

3.0: Number of Agricultural Households and Average Household Size By Sex of the Head of Household and District, 2002/03 Agricultural Year

District	Male			Female			Total		
	Number of Household Members	Number of Households	Average Household Size	Number of Household Members	Number of Households	Average Household Size	Number of Household Members	Number of Households	Average Household Size
Mpanda	327,178	52,383	6	30,191	7,150	4	357,369	59,533	6
Sumbawanga Rural	321,441	60,260	5	33,267	8,675	4	354,708	68,935	5
Nkasi	145,125	26,660	5	13,259	3,824	3	158,384	30,483	5
Sumbawanga Urban	65,457	11,599	6	6,351	1,710	4	71,808	13,309	5
Total	859,201	150,902	6	83,068	21,359	4	942,269	172,261	5

Table. 3.1 The Livelihood Activities/Source of Income of the Households Ranked in Order of Importance by District

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Mpanda	1	5	4	3	6	7	2
Sumbawanga Rural	1	6	4	3	5	7	2
Nkasi	1	7	4	3	6	5	2
Sumbawanga Urban	1	6	4	3	5	7	2
Total	1	7	4	6	3	5	2

RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES

3.1e: RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Fifth Most Importance

District	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Mpanda	748	2,677	917	0	110	2,494
Sumbawanga Rural	3,377	2,981	4,597	2,837	1,059	2,267
Nkasi	1,485	1,707	610	705	0	1,635
Sumbawanga Urban	652	578	443	674	0	1,019
Total	6,262	7,942	6,567	4,216	1,169	7,415

3.1f: RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Sixth Most Importance

District	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Mpanda	0	244	244	0	0	0
Sumbawanga Rural	1,170	239	334	701	223	111
Nkasi	244	227	46	0	73	82
Sumbawanga Urban	102	0	69	370	0	134
Total	1,516	710	693	1,072	295	327

3.1g RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Seventh Most Importance

District	Annual Crop Farming	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Mpanda	266	0	0	132	0
Sumbawanga Rural	0	111	0	118	119
Nkasi	0	0	0	73	0
Sumbawanga Urban	0	33	35	35	0
Total	266	144	35	358	119

LAND ACCESS/OWNERSHIP

4.1 LAND ACCESS/OWNERSHIP: Number of Agricultural Households By Type of Land Ownership/Tenure and District, 2002/03 Agricultural Year

District	Land Access														
	Households with Area Leased/Certificate of Ownership		Households with Area Owned Under Customary Law		Households with Area Bought From Others		Households with Area Rented From Others		Households with Area Borrowed From Others		Households with Area Shared Cropped From Others		Households with Area under Other Forms of Tenure		Total Number of Households
	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	
Mpanda	1,476	2	44,634	75	12,473	21	5,225	9	4,886	8	536	1	1,330	2	59,533
Sumbawanga Rural	1,119	2	55,844	81	20,170	29	8,505	12	7,183	10	240	0	2,336	3	68,935
Nkasi	471	2	25,449	83	6,969	23	713	2	3,735	12	322	1	740	2	30,483
Sumbawanga Urban	239	2	11,267	85	3,819	29	655	5	954	7	139	1	665	5	13,309
Total	3,305	2	137,194	80	43,431	25	15,099	9	16,758	10	1,238	1	5,072	3	172,261

4.2 LAND ACCESS/OWNERSHIP: Area of Land by type of Ownership/Tenure (Hectare) and District, 2002/03 Agricultural Year

District	Land Access/ Ownership (Hectare)							
	Area Leased/Certificate of Ownership	Area Owned Under Customary Law	Area Bought From Others	Area Rented From Others	Area Borrowed From Others	Area Shared Cropped From Others	Area under Other Forms of Tenure	Total
Mpanda	3,939	133,807	38,583	5,601	4,323	639	1,810	188,703
Sumbawanga Rural	3,245	162,802	50,391	12,332	8,478	85	4,202	241,535
Nkasi	927	85,792	14,801	1,546	7,377	1,215	682	112,339
Sumbawanga Urban	264	22,409	6,112	930	805	140	441	31,102
Total	8,376	404,810	109,887	20,409	20,983	2,079	7,135	573,679

LAND USE

5.3: Number of Agricultural Households by Whether All Land Available to the Household Was Used and District, 2002/03 Agricultural Year

District	Was all Land Available to the Hh Used During 2002/03?				
	Yes		No		Total
	Number	%	Number	%	Number
Mpanda	17,480	29	42,054	71	59,533
Sumbawanga Rural	27,846	41	40,674	59	68,520
Nkasi	11,375	37	19,109	63	30,483
Sumbawanga Urban	6,850	51	6,459	49	13,309
Total	63,550	37	108,295	63	171,845

5.4 Number of Agricultural Households by Whether they Consider Having Sufficient Land for the Household and District, 2002/03 Agricultural Year

District	Do you Consider that you have sufficient land for the Hh?				
	Yes		No		Total
	Number	Percent	Number	Percent	Number
Mpanda	41,743	70	17,790	30	59,533
Sumbawanga Rural	43,553	64	24,966	36	68,520
Nkasi	18,324	60	12,160	40	30,483
Sumbawanga Urban	5,302	40	8,007	60	13,309
Total	108,922	63	62,923	37	171,845

5.4: Number of Agricultural Households by Whether they Consider Having Sufficient Land for the Household and District, 2002/03 Agricultural Year

District	Do you Consider that you have sufficient land for the Hh?					
	Yes		No		Total	
	Number	%	Number	%	Number	Percent
Mpanda	41,743	70	17,790	30	59,533	100
Sumbawanga Rural	43,553	64	24,966	36	68,520	100
Nkasi	18,324	60	12,160	40	30,483	100
Sumbawanga Urban	5,302	40	8,007	60	13,309	100
Total	108,922	63	62,923	37	171,845	100

ANNUAL CROP AND VEGETABLE PRODUCTION

7.1 & 7.2a: ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (ha) by season and District

District	Dry Season		Wet Season		Total Area Planted (hectare)	% Area planted in Dry season
	Number of Households	Planted Area	Number of Households	Planted Area		
	Mpanda	0	0	158400		
Sumbawanga Rural	474	863	177594	132698	133561	0.6
Nkansi	160	130	74856	53306	53436	0.2
Sumbawanga Urban	104	56	32727	20109	20166	0.3
Total	738	1049	443,577	302,344	303,393	0.3

7.1 & 7.2b ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households Planting Crops By Season and District

District	Dry Season		Wet Season		Total Number of Crop Growing Households
	Households Growing Crops	Households NOT Growing Crops	Number of Households Growing Crops	Number of Households NOT Growing Crops	
Mpanda	0	59533	59533	0	59533
Sumbawanga Rural	118	68817	67939	996	68935
Nkansi	80	30403	30403	80	30483
Sumbawanga Urban	35	13274	13240	69	13309
Total	233	172027	171,116	1,145	172,261

7.1 & 7.2h TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Agriculture Households and Planted Area By Insecticide Use and District for the 2002/03 agricultural year - Wet & Dry Seasons- Rukwa region.

District	Insecticide Use						% of Planted Area using Insecticide
	Insecticide Use		Insecticide Use		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Mpanda	0	0	5,092	11,021	158,400	96,231	11.5
Sumbawanga Rural	0	0	7,774	19,216	177,594	132,698	14.5
Nkansi	0	0	1,696	6,698	74,856	53,306	12.6
Sumbawanga Urban	35	56	7,736	12,832	32,727	20,109	63.8
Total	35	56	22,298	49,767	443,577	302,344	16.5

7.1 & 7.2i TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Agriculture Households and Planted Area By Insecticide Use and District for the 2002/03 agricultural year - Wet & Dry Seasons- Rukwa region.

District	Herbicide Use						% of Planted Area using Insecticide
	Insecticide Use		Insecticide Use		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Mpanda	0	0	403	571	59,533	96,231	0.6
Sumbawanga Rural	0	0	460	918	68,401	132,698	0.7
Nkansi	0	0	80	422	30,403	53,306	0.8
Sumbawanga Urban	0	0	70	120	13,240	20,109	0.6
Total	0	0	1,013	2,031	171,578	302,344	0.7

7.1d ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Pesticide Use and District, DRY SEASON, Rukwa Region.

District	Insecticide Use					
	Household Using Irrigation		Household NOT Using Irrigation		Total	
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area
Mpanda	0	0	0	0	0	0
Sumbawanga Rural	0	0	118	863	118	863
Nkansi	0	0	80	130	80	130
Sumbawanga Urban	35	56	0	0	35	56
Total	35	56	199	993	233	1,049

7.1e ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Herbicide Use and District, DRY SEASON, Ruwa Region

District	Herbicide Use						% Planted Area using Herbicide
	Household Using Irrigation		Household NOT Using Irrigation		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Mpanda	0	0	0	0	0	0	0
Sumbawanga Rural	0	0	118	863	118	863	0
Nkansi	0	0	80	130	80	130	0
Sumbawanga Urban			35	56	35	56	0
Total	0	0	233	1,049	233	1,049	0

7.1f ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Fungicide Use and District DRY SEASON, Rukwa Region.

District	Fungicide Use						% Planted Area using Herbicide
	Household Using Irrigation		Household NOT Using Irrigation		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Mpanda	0	0	0	0	0	0	0
Sumbawanga Rural	0	0	118	863	118	863	0
Nkansi	0	0	80	130	80	130	0
Sumbawanga Urban	0	0	35	56	35	56	0
Total	0	0	233	1,049	233	1,049	0

7.1g ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Improved Seed Use and District, DRY SEASON

District	Improved Seed Use						% Planted Area using Herbicide
	Household Using Irrigation		Household NOT Using Irrigation		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Mpanda	0	0	0	0	0	0	0
Sumbawanga Rural	118	863	0	0	118	863	100
Nkansi	0	0	80	130	80	130	0
Sumbawanga Urban	0	0	35	56	35	56	0
Total	118	863	115	186	233	1,049	82
%	51	82	49	18	100	100	

7.2f ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Fungicide Use and District 2002/03 WET SEASON, Rukwa Region

District	Fungicide Use						% of Planted Area Using Fungicide
	Households Using Fungicide		Households Not Using Fungicide		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Mpanda	3,227	6,178	56,306	90,053	59,533	96,231	6.4
Sumbawanga Rural	680	597	67,721	132,101	68,401	132,698	0.4
Nkasi	315	705	30,089	52,601	30,403	53,306	1.3
Sumbawanga Urban	583	1,286	12,657	18,823	13,240	20,109	6.4
Total	4,805	8,766	166,773	293,578	171,578	302,344	2.9
%	3	3	97	97	100	100	

7.2g ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Improved Seed Use and District, WET SEASON, Rukwa Region

District	Improved Seed Use						% of Planted Area Using Improved Seed
	Households Using Improved Seed		Households Not Using Improved Seed		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Mpanda	3,082	5,507	56,451	90,670	59,533	96,178	5.7
Sumbawanga Rural	6,712	18,377	61,227	111,967	67,939	130,345	14.1
Nkansi	569	1,183	29,834	51,977	30,403	53,160	2.2
Sumbawanga Urban	676	1,127	12,564	18,961	13,240	20,088	5.6
Total	11,039	26,195	160,077	273,576	171,116	299,771	8.7
%	6	9	94	91	100	100	

7.2.29 Number of Crop Growing Households, Planted Area (ha) and Tobacco Harvested (tons) by season and District 2002/03 Agricultural Year.

District	Tobacco										
	Dry Season				Wet Season				Total		
	No. of H/holds	Planted Area (ha)	Quantity Harvested (tons)	Yield (ton/ha)	No. of H/holds	Planted Area (ha)	Quantity Harvested (tons)	Yield (ton/ha)	Planted Area (ha)	Quantity Harvested (tons)	Yield (ton/ha)
Mpanda	0	0	0	0.0	4,700	3,233	3,209	1.0	3,233	3,209	1.0
Sumbawanga Rural	0	0	0	0.0	118	24	41	1.7	24	41	1.7
Nkansi	0	0	0	0.0	0	0	0	0.0	0	0	0.0
Sumbawanga Urban	0	0	0	0.0	0	0	0	0.0	0	0	0.0
Total	0	0	0	0.0	4,818	3,256	3,251	1.0	3,256	3,251	1.0

PERMANENT CROPS

cont..... Production of Permanent Crops by Crop Type and District, Rukwa Region

Sumbawanga Urban	Sour Soup	7	0	.	0	
	Coconut	42	42	10	247	
	Coffee	10	.	.	0	
	Sugarcane	346	301	10,261	34,060	
	Cardamon	3	3	2	504	
	Mpesheni	.	0	0	0	
	Banana	272	124	759	6,138	
	Avocado	.	.	1	0	
	Orange	73	10	4	364	
	Guava	5	8	28	3,438	
	Plums	.	0	3	0	
	Pitches	.	1	5	3,952	
	Lime/Lemon	11	12	85	7,002	
	Total	770	503	11,159	22,189	
	Total	Sour Soup	7	0	.	0
		Mangostine	.	.	12	0
		Pigeon Pea	162	210	98	464
		Star Fruit	.	0	207	0
		Palm Oil	138	80	2,405	30,144
		Coconut	60	58	62	1,064
Coffee		35	24	7	296	
Rubber		.	.	72	0	
Sugarcane		1,797	4,327	54,638	12,628	
Cardamon		3	3	2	504	
Jack Fruit		.	.	4	0	
Mpesheni		.	0	83	0	
Banana		1,790	1,010	11,471	11,353	
Avocado		.	.	25	0	
Mango		547	2,382	15,571	6,537	
Pawpaw		21	43	1,257	29,248	
Pineapple		.	.	2	0	
Orange		190	671	1,569	2,339	
Grape Fruit		22	.	.	0	
Mandarine/Ta		.	.	32	0	
Guava	155	46	649	14,025		
Plums	.	0	3	0		
Pears	6	5	1	247		
Pitches	.	1	5	3,952		
Lime/Lemon	3,877	18	133	7,554		
Total	8,810	8,879	88,310	9,946		

cont.....Area Planted by crop Type -
Rukwa Region

Crop	Area Planted	%
Lime/Lemon	3,877	44
Sugarcane	1,797	20
Banana	1,790	20
Mango	547	6
Orange	190	2
Pigeon Pea	162	2
Guava	155	2
Palm Oil	138	2
Coconut	60	1
Coffee	35	0
Grape Fruit	22	0
Pawpaw	21	0
Sour Soup	7	0
Pears	6	0
Cardamon	3	0
Mangostine	0	0
Star Fruit	0	0
Rubber	0	0
Jack Fruit	0	0
Mpesheni	0	0
Avocado	0	0
Pineapple	0	0
Mandarine/Tangerine	0	0
Plums	0	0
Pitches	0	0
Total	8,810	100

AGROPROCESSING

8.0a Number of Crop Growing Households reported to have Processed Farm Products by District, 2002/03 agricultural year.

District	Households That		Households That Did Not		Total	
	Number	%	Number	%	Number	%
Mpanda	57,127	96	2,407	4	59,533	100
Sumbawanga Rural	66,890	97	2,045	3	68,935	100
Nkansi	30,037	99	446	1	30,483	100
Sumbawanga Urban	13,101	98	208	2	13,309	100
Total	167,155	97	5,106	3	172,261	100

8.0b Number of Crop Growing Households Reporting Processing of Farm Products Produced During 2002/03 Agriculture Year By Method of Processing and District

District	Method of Processing							Total
	On Farm by Hand	On Farm by Machine	By Neighbour Machine	By Co-operative Union	By Trader	Other	By Factory	
Mpanda	9,773	400	46,954	0	0	0	0	57,127
Sumbawanga Rural	6,092	1,396	49,404	119	9,550	331	0	66,890
Nkansi	4,073	1,227	24,416	0	0	0	321	30,037
Sumbawanga Urban	270	375	12,422	0	35	0	0	13,101
Total	20,209	3,397	133,195	119	9,585	331	321	167,155

8.1.1d AGRO PROCESSING: Number of Crop Growing Households By Main Product During 2002/03 Agriculture Year and District

District	Main Product					
	Flour / Meal	Grain	Oil	Juice	Rubber	Total
Mpanda	53,178	3,949	0	0	0	57,127
Sumbawanga Rural	61,492	3,148	2,135	116	0	66,890
Nkansi	27,574	1,911	481	0	71	30,037
Sumbawanga Urban	12,827	69	135	69	0	13,101
Total	155,071	9,077	2,751	185	71	167,155

8.1.1e AGRO PROCESSING: Number of Crop Growing Households By Use of Primary Processed Product During 2002/03 Agriculture Year and District, Rukwa Region.

District	Product Use					
	Household / Human Consumption	Sale Only	Animal Consumption	Did Not Use	Other	Total
Mpanda	57,127	0	0	0	0	57,127
Sumbawanga Rural	65,380	691	351	354	115	66,890
Nkansi	29,892	73	0	73	0	30,037
Sumbawanga Urban	13,101	0	0	0	0	13,101
Total	165,499	764	351	426	115	167,155

8.1.1f AGRO PROCESSING: Number of Crop Growing Households By Where Product Sold During 2002/03 Agriculture Year and District

District	Where Sold									
	Neighbours	Local Market / Trade Store	Secondary Market	Marketing Co-operative	Farmers Association	Large Scale Farm	Trader at Farm	Other	Did not Sell	Total
Mpanda	3,769	254	593	0	0	0	1,543	0	50,968	57,127
Sumbawanga Rural	2,398	342	230	0	353	0	205	0	63,362	66,890
Nkansi	366	0	0	132	76	0	0	80	29,383	30,037
Sumbawanga Urban	34	0	0	0	139	34	104	34	12,756	13,101
Total	6,568	596	823	132	568	34	1,851	115	156,468	167,155

8.1.1g AGRO PROCESSING: Number of Crop Growing Households By By-Product During 2002/03 Agriculture Year and District, Rukwa Region

District	By Product										
	Bran	Cake	Husk	Juice	Fiber	Pulp	Oil	Shell	No by-product	Other	Total
Mpanda	19,440	134	6,481	0	133	134	0	1,209	29,461	134	57,127
Sumbawanga Rural	9,309	3,907	4,360	0	0	350	121	817	48,028	0	66,890
Nkansi	658	2,389	2,588	0	72	0	80	2,105	21,995	150	30,037
Sumbawanga Urban	528	851	0	34	0	0	0	0	11,688	0	13,101
Total	29,934	7,281	13,429	34	205	484	201	4,131	111,172	284	167,155

MARKETING

10.1 Number of Crop Producing Households Reported to have Sold Agricultural Produce by District During 2002/03, Rukwa Region

District	Households that sold		Number of Households that Did not Sell		Total Number
	Number	%	Number	%	
Mpanda	46,242	78	13,292	22	59,533
Sumbawanga Rural	59,911	87	9,024	13	68,935
Nkansi	24,110	79	6,374	21	30,483
Sumbawanga Urban	10,835	81	2,474	19	13,309
Total	141,097	81.9	31,164	18.1	172,261

10.2 Number of Crop Producing Households Reporting Not Selling Agricultural Products During 2003/04 By Reason for Not Selling Crops By District

District	Main Reasons for Not Selling Crops								
	Price Too Low	Production Insufficient to Sell	Market Too Far	Farmers Association Problems	Trade Union Problems	Regulatory Board Problems	Other	Not applicable	Total
Mpanda	1,200	44,338	535	134	0	0	537	12,788	59,533
Sumbawanga Rural	3,294	30,710	456	0	233	115	1,123	32,085	68,016
Nkansi	1,408	15,404	0	0	0	82	958	12,510	30,362
Sumbawanga Urban	547	6,545	0	0	69	0	35	6,078	13,275
Total	6,450	96,997	992	134	303	198	2,652	63,461	171,186

10.3 Proportion of Households who Reported Not Selling Their Crops by District During 2002/03 Agricultural Year, Rukwa Region.

District	Main Reasons for Not Selling Crops								
	Price Too Low	Production Insufficient to Sell	Market Too Far	Farmers Association Problems	Trade Union Problems	Regulatory Board Problems	Other	Not applicable	Total
Mpanda	2.02	74.48	0.90	0.23	0.00	0.00	0.90	21.48	100.00
Sumbawanga Rural	4.84	45.15	0.67	0.00	0.34	0.17	1.65	47.17	100.00
Nkansi	4.64	50.73	0.00	0.00	0.00	0.27	3.15	41.20	100.00
Sumbawanga Urban	4.12	49.30	0.00	0.00	0.52	0.00	0.26	45.79	100.00
Total	3.77	56.66	0.58	0.08	0.18	0.12	1.55	37.07	100.00

IRRIGATION/EROSION CONTROL

Table 11.1: Number and Percent of Households Reporting Use of Irrigation During 2002/03 Agriculture Year By District

District	Households Practicing Irrigation		Households not Practicing Irrigation		Total
	Number of Household	%	Number of Household	%	Number of Household
Mpanda	3,343	6	56,190	94	59,533
Sumbawanga Rural	8,564	12	60,371	88	68,935
Nkansi	1,718	6	28,766	94	30,483
Sumbawanga Urban	3,258	24	10,051	76	13,309
Total	16,883	10	155,378	90	172,261

11.2: Area (ha) of Irrigated and Non Irrigatable (ha) Land By District

District	Irrigated Area	Area Irrigated Land this Year	%
Mpanda	915	844	92
Sumbawanga Rural	9,278	5,487	59
Nkansi	799	462	58
Sumbawanga Urban	1,588	730	46
Total	12,578	7,523	60

11.3: Number of Households Using Irrigation By Source of Irrigation Water During 2003/04 Agricultural Year By District

District	Source of Irrigation Water						Total
	River	Lake	Dam	Well	Borehole	Canal	
Mpanda	1,877	0	0	1,065	401	0	3,343
Sumbawanga Rural	7,058	0	344	592	0	571	8,564
Nkansi	788	148	0	474	0	307	1,718
Sumbawanga Urban	1,502	0	0	1,005	35	715	3,258
Total	11,225	148	344	3,137	435	1,593	16,883

11.4: Number of Households Using Irrigation By Method of Irrigation of Obtaining Water By District

District	Method of Obtaining Water					Total
	Gravity	Hand Bucket	Hand Pump	Motor Pump	Other	
Mpanda	1,204	2,006	133	0	0	3,343
Sumbawanga Rural	7,296	1,150	0	0	118	8,564
Nkansi	1,099	541	0	78	0	1,718
Sumbawanga Urban	1,429	1,277	0	68	484	3,258
Total	11,028	4,974	133	146	602	16,883

11.5 IRRIGATION: Number of Households Using Irrigation By Method of Irrigation Application By District

District	Method of Application				Total
	Flood	Sprinkler	Water Hose	Bucket / Watering Can	
Mpanda	1,206	0	133	2,004	3,343
Sumbawanga Rural	7,305	0	115	1,144	8,564
Nkansi	1,027	76	0	615	1,718
Sumbawanga Urban	1,843	67	0	1,348	3,258
Total	11,381	143	248	5,111	16,883
%	67	1	1	30	100

11.6: IRRIGATION: Number of Households With Erosion Control/Water Harvesting Facilities on their Land By District

District	Does the Household Have Any Erosion Control/Water Harvesting					
	Have facility		Does Not Have		Total	
	Number	%	Number	%	Number	%
Mpanda	6,967	12	52,566	88	59,533	100
Sumbawanga Rural	5,546	8	63,389	92	68,935	100
Nkansi	1,549	5	28,934	95	30,483	100
Sumbawanga Urban	2,143	16	11,166	84	13,309	100
Total	16,206	9	156,055	91	172,261	100

11.7 EROSION CONTROL: Number of Erosion Control Harvesting Structures By Type and District

District	Type of Erosion Control								Total
	Terraces	Erosion Control Bunds	Gabions / Sandbag	Vetiver Grass	Tree Belts	Water Harvesting Bunds	Drainage Ditches	Dam	
Mpanda	.	105,686	.	.	532	28,191	2,000	.	136,409
Sumbawanga Rural	.	111,614	.	.	595	8,675	2,315	723	123,923
Nkansi	0	3,452	.	.	.	73	606	234	4,365
Sumbawanga Urban	136	2,414	.	299	208	964	1,783	.	5,804
Total	136	223,167	.	299	1,336	37,903	6,705	957	270,502

ACCESS TO INPUTS

Table 12.1.1 ACCESS TO INPUTS: Number of Agricultural Households Using Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Using Chemical Fertilizers		NOT Using Chemical Fertilizers		Total Crop Growing Households
	No. of Households	%	No. of Households	%	
Mpanda	9,261	16	50,273	84	59,533
Sumbawanga Rural	454	1	68,363	99	68,817
Nkasi	439	1	29,964	99	30,403
Sumbawanga Urban	949	7	12,360	93	13,309
Total	11,103	6	160,960	94	172,063

Table 12.1.2 ACCESS TO INPUTS: Number of Agricultural Households Using Farm Yard Manure by District, 2002/03 Agricultural Year

District	Farm Yard Manure		NOT Using Farm Yard Manure		Total Crop Growing Households
	No. of Households	%	No. of Households	%	
Mpanda	2,273	4	57,260	96	59,533
Sumbawanga Rur	9,319	14	59,616	86	68,935
Nkasi	2,940	10	27,623	90	30,563
Sumbawanga Urb	5,434	41	7,875	59	13,309
Total	19,966	12	152,375	88	172,341

Table 12.1.3 ACCESS TO INPUTS: Number of Agricultural Households Using COMPOST Manure by District, 2002/03 Agricultural Year

District	Using COMPOST Manure		NOT Using COMPOST Manure		Total Crop Growing Households
	No. of Households	%	No. of Households	%	
Mpanda	666	1	58,867	99	59,533
Sumbawanga Rur	1,406	2	67,529	98	68,935
Nkasi	686	2	29,797	98	30,483
Sumbawanga Urb	540	4	12,769	96	13,309
Total	3,298	2	168,962	98	172,261

Table 12.1.4 ACCESS TO INPUTS: Number of Agricultural Households Using Pesticides/Fungicides by District, 2002/03 Agricultural Year

District	Using Insecticide/Fungicides		NOT Using Pesticides/Fungicides		Total number of Growing Households
	No. of Households	%	No. of Households	%	
Mpanda	4,699	8	54,834	92	59,533
Sumbawanga Rural	6,263	9	62,672	91	68,935
Nkasi	1,504	5	28,980	95	30,483
Sumbawanga Urban	7,038	53	6,271	47	13,309
Total	19,503	11	152,758	89	172,261

Table 12.1.5 ACCESS TO INPUTS: Number of Agricultural Households Using Herbicides by District, 2002/03 Agricultural Year

District	Using Herbicides		Number of Agricultural Households NOT Using Herbicides		Total number of Growing Households
	No. of Households	%	No. of Households	%	
Mpanda	269	0	59,264	100	59,533
Sumbawanga Rur	0	0	68,935	100	68,935
Nkasi	0	0	30,483	100	30,483
Sumbawanga Urb	0	0	13,309	100	13,309
Total	269	0	171,991	100	172,261

Table 12.1.6 ACCESS TO INPUTS: Number of Agricultural Households using Improved Seeds by District, 2002/03 Agricultural Year

District	Using Improved Seeds		NOT Using Improved Seeds		Total number of Growing Households
	No. of Households	%	No. of Households	%	
Mpanda	5,977	10	53,556	90	59,533
Sumbawanga Rur	1,869	3	67,067	97	68,935
Nkasi	388	1	30,096	99	30,483
Sumbawanga Urb	784	6	12,525	94	13,309
Total	9,018	5	163,243	95	172,261

Table 12.1.13 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Chemical Fertil

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	Number
Mpanda	941	10	1,209	13	2,551	28	2,955	32	1,605	17	9,261
Sumbawanga Rural	0	0	0	0	0	0	0	0	454	100	454
Nkasi	0	0	297	68	0	0	72	16	70	16	439
Sumbawanga Urban	67	7	69	7	543	57	169	18	100	11	949
Total	1,008	9	1,576	14	3,094	28	3,195	29	2,230	20	11,103

Table 12.1.14 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Farm Yard Manure by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		20 km and Above		Total
	Number	%	Number	%	Number	%	Number	%	Number
Mpanda	2,004	88	135	6	0	0	134	6	2,273
Sumbawanga Rural	6,441	69	1,848	20	1,031	11	0	0	9,319
Nkasi	2,453	83	243	8	165	6	78	3	2,940
Sumbawanga Urban	4,385	81	612	11	437	8	0	0	5,434
Total	15,283	77	2,838	14	1,632	8	213	1	19,966

Table 12.1.15 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of COMPOST Manure by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Total Number
	Number	%	Number	%	
Mpanda	666	100	0	0	666
Sumbawanga Rural	1,297	92	0	0	1,297
Nkasi	611	89	76	11	686
Sumbawanga Urban	371	69	33	6	405
Total	2,946	89	109	3	3,054

Table 12.1.18 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Improved Seeds by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	Number
Mpanda	135	2	940	16	1,210	20	1,471	25	2,221	37	5,977
Sumbawanga Rur	317	17	107	6	542	29	0	0	903	48	1,869
Nkasi	0	0	0	0	0	0	153	40	234	60	388
Sumbawanga Urb	0	0	34	4	475	61	68	9	208	27	784
Total	452	5	1,081	12	2,226	25	1,693	19	3,566	40	9,018

Table 12.1.16 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Insecticides/Fungicides by District, 2002/03 Agricultural Year

District	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	Number
Mpanda	135	3	1,209	26	809	17	1,345	29	1,201	26	4,699
Sumbawanga Rur	1,296	21	460	7	471	8	468	7	3,569	57	6,263
Nkasi	149	10	82	5	407	27	0	0	867	58	1,504
Sumbawanga Urb	1,734	25	581	8	2,447	35	862	12	1,414	20	7,038
Total	3,313	17	2,332	12	4,134	21	2,675	14	7,050	36	19,503

Table 12.1.34 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Pesticides/Fungicides by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Total
	Number	%	Number	%	Number	%	Number
Mpanda	1,744	37	2,955	63	0	0	4,699
Sumbawanga Rural	1,024	16	4,293	69	946	15	6,263
Nkasi	230	15	1,274	85	0	0	1,504
Sumbawanga Urban	2,239	32	4,595	65	204	3	7,038
Total	5,236	27	13,116	67	1,150	6	19,503

Table 12.1.35 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Herbicides by District, 2002/03 Agricultural Year

District	Excellent		Total
	Number	%	Number
Mpanda	269	100	269
Total	269	100	269

Table 12.1.36 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Improved Seeds by District, 2002/03 Agricultural Year

District	Excellent		Good		Average		Poor		Total
	Number	%	Number	%	Number	%	Number	%	Number
Mpanda	932	16	5,045	84	0	0	0	0	5,977
Sumbawanga Rural	352	19	1,277	68	120	6	120	6	1,869
Nkasi	70	18	317	82	0	0	0	0	388
Sumbawanga Urban	309	39	440	56	35	4	0	0	784
Total	1,665	18	7,079	78	155	2	120	1	9,018

Table 12.1.37 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Next Year Chemical Fertilizer by District, 2002/03 Agricultural Year

District	Number of		Number of		Total
	Number	%	Number	%	Number
Mpanda	14,215	24	45,319	76	59,533
Sumbawanga Rural	10,256	15	58,561	85	68,817
Nkasi	3,265	11	27,139	89	30,403
Sumbawanga Urban	1,847	14	11,462	86	13,309
Total	29,582	17	142,480	83	172,063

Table 12.1.38 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Next Year Farm Yard Manure by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Next Year Farm Yard Manure		Agricultural Households With NO Plan to use Next Year Farm Yard Manure		Total Number
	Number	%	Number	%	
Mpanda	2,794	5	56,739	95	59,533
Sumbawanga Rural	19,435	28	49,500	72	68,935
Nkasi	6,710	22	23,854	78	30,563
Sumbawanga Urban	7,162	54	6,147	46	13,309
Total	36,102	21	136,239	79	172,341

Table 12.1.39 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Next Year COMPOST Manure by District, 2002/03 Agricultural Year

District	Agricultural Households With Plan to use Next Year COMPOST Manure		Agricultural Households With NO Plan to use Next Year COMPOST Manure		Total Number
	Number	%	Number	%	
Mpanda	1,060	2	58,474	98	59,533
Sumbawanga Rural	4,615	7	64,321	93	68,935
Nkasi	1,470	5	29,013	95	30,483
Sumbawanga Urban	813	6	12,496	94	13,309
Total	7,958	5	164,302	95	172,261

AGRICULTURE CREDITS

13.2a: AGRICULTURE CREDIT: Number of Households Receiving Credit By Sex of Household Member Receiving Credit By District

District	Male		Female		Total
	Number	%	Number	%	
Mpanda	4,552	94	270	6	4,821
Sumbawanga Rural	2,146	95	116	5	2,261
Nkansi	0	0	80	100	80
Sumbawanga Urban	135	67	67	33	202
Total	6,833	93	533	7	7,365
%	93		7		

13.2c: AGRICULTURE CREDIT: Number of Households Receiving Credit By Source of Credit By District

District	Family, Friend and Relative	Co-operative	Trader / Trade Store	Private Individual	Religious Organisation / NGO / Project	Total
Mpanda	653	2,685	1,616	0	0	4,954
Sumbawanga Rural	1,174	0	966	121	0	2,261
Nkansi	80	0	0	0	0	80
Sumbawanga Urban	34	0	34	34	101	202
Total	1,941	2,685	2,616	155	101	7,499
%	26	36	35	2	1	100

13.1a: AGRICULTURE CREDIT: Number of Households Receiving Credit By Reason for Not Using Credit By District

District	Not needed	Not available	Did not want to go into debt	Interest rate/cost too high	Did not know how to get credit	Difficult bureaucratic procedure	Credit granted too late	Don't know about credit	Total
Mpanda	2,395	10,223	5,567	2,355	19,074	3,151	0	11,814	54,579
Sumbawanga Rural	2,296	27,400	11,635	1,772	11,677	567	115	11,211	66,674
Nkansi	999	9,302	2,750	881	9,917	313	76	6,165	30,403
Sumbawanga Urban	508	4,732	1,947	654	2,912	444	202	1,706	13,107
Total	6,198	51,657	21,899	5,662	43,580	4,476	393	30,897	164,762

13.1b: AGRICULTURE CREDIT: Number of Credits Received By Main Purpose of Credit and District

District	Labour	Seeds	Fertilizers	Agro-chemicals	Tools / Equipment	Irrigation Structures	Other
Mpanda	388	2,285	3,898	2,143	1,078	537	0
Sumbawanga Rural	2,025	0	0	0	0	0	237
Nkansi	80	0	0	0	0	0	0
Sumbawanga Urban	101	68	68	67	101	0	34
Total Credits	2,594	2,353	3,966	2,210	1,178	537	270

TREE FARMING AND AGROFORESTRY

14.4: TREE FARMING: Number of Households By Distance to Community Planted Forest (Km) By District

District	Distance to Community Planted Forest (km)						Total
	0-9	1-19	20-29	30-39	40-49	60+	
Mpanda	2,281	3,198	2,618	378	0	131	8,606
Sumbawanga Rural	4,364	1,339	1,554	628	0	2,555	10,440
Nkansi	6,357	619	81	493	329	326	8,205
Sumbawanga Urban	5,592	1,950	996	611	136	0	9,285
Total	18,593	7,105	5,250	2,110	465	3,012	36,536
%	51	19	14	6	1	8	100

14.5: TREE FARMING: Number of responses by second use of planted trees and District for the 2002/03

District	Second Use							Total
	Planks / Timber	Poles	Charcoal	Fuel for Wood	Shade	Medicinal	Other	
Mpanda	1	11	4	59	35	0	2	112
Sumbawanga Rural	6	21	1	26	5	2	0	61
Nkansi	12	10	0	19	18	2	1	62
Sumbawanga Urban	29	30	0	81	3	2	0	145
Total	48	72	5	185	61	6	3	380

14.6: TREE FARMING: Number of responses by main use of planted trees and District for the 2002/03 agricultural year, Rukwa Region

District	Main Use							Total
	Planks / Timber	Poles	Charcoal	Fuel for Wood	Shade	Medicinal	Other	
Mpanda	1	9	0	41	60	1	0	112
Sumbawanga Rural	34	11	0	4	9	2	0	60
Nkansi	17	1	0	27	15	1	1	62
Sumbawanga Urban	84	16	1	42	2	0	0	145
Total	136	37	1	114	86	4	1	379

CROP EXTENSION

15.1 CROP EXTENSION" Number of Households Receiving Extension Messages By District

District	Households Receiving Extension Advice		Households Not Receiving Extension Advice		Total Number of Households
	Number	%	Number	%	
Mpanda	11,351	19	48,182	81	59,533
Sumbawanga Rural	13,859	20	55,076	80	68,935
Nkansi	1,834	6	28,649	94	30,483
Sumbawanga Urban	2,002	15	11,307	85	13,309
Total	29,046	17	143,215	83	172,261

15.1 CROP EXTENSION: Number of Households By Quality of Extension Services By District During the 2002/03 agricultural year, Rukwa Region

District	Very Good		Good		Average		Poor		Total
	Number	%	Number	%	Number	%	Number	%	Number
Mpanda	667	6	6,021	53	3,023	27	1,640	14	11,351
Sumbawanga Rural	1,661	12	7,930	58	4,151	30	0	0	13,742
Nkansi	225	12	927	51	682	37	0	0	1,834
Sumbawanga Urban	103	5	1,660	83	203	10	35	2	2,002
Total	2,657	9	16,539	57	8,059	28	1,675	6	28,930

15.3: EXTENSION MESSAGES: Number of Households By Source of Crop Extension Messages By District During 2002/03 Agricultural Year, Rukwa Region

District	Government		NGO / Development Project		Cooperative		Large Scale Farm		Other		Not		Total
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
Mpanda	8,141	73	2,405	21	135	1	401	4	135	1	11,217	81	11,217
Sumbawanga Rural	13,037	94	350	3	117	1	355	3	0	0	13,859	80	13,859
Nkansi	1,596	87	82	4	78	4	78	4	0	0	1,834	94	1,834
Sumbawanga Urban	1,761	90	138	7	0	0	33	2	35	2	1,967	85	1,967
Total	24,535	85	2,975	10	330	1	867	3	170	1	28,877	83	28,877

15.4: EXTENSION MESSAGES: Number of Households By Receiving Advice on Plant Spacing By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Spacing						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Total Households receiving advice		
Mpanda	6,231	2,151	135	133	135	8,785	59,533	15
Sumbawanga Rural	11,794	238	0	120	0	12,152	68,935	18
Nkansi	1,362	82	78	78	0	1,601	30,483	5
Sumbawanga Urban	1,693	138	0	33	0	1,864	13,309	14
Total	21,080	2,610	213	364	135	24,402	172,261	14

15.5: EXTENSION MESSAGES: Number of Households By Receiving Advice on the Use of Agro-chemicals By Source of Messages By District Rukwa Region

District	Use of Agrochemicals						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Not applicable	Total		
Mpanda	2,112	1,346	134	0	0	3,591	59,533	6
Sumbawanga Rural	8,108	119	117	116	120	8,579	68,935	12
Nkansi	387	82	78	0	70	618	30,483	2
Sumbawanga Urban	1,218	241	0	33	0	1,492	13,309	11
Total	11,825	1,787	329	149	190	14,280	172,261	8

15.6: EXTENSION MESSAGES: Number of Households By Receiving Advice on the Erosion Control By Source of Messages By District Rukwa Region

District	Erosion Control						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Not applicable	Total		
Mpanda	1,587	269	0	0	0	1,857	59,533	3
Sumbawanga Rural	7,115	119	117	116	115	7,580	68,935	11
Nkansi	527	82	78	0	0	687	30,483	2
Sumbawanga Urban	881	207	0	0	0	1,088	13,309	8
Total	10,110	676	195	116	115	11,212	172,261	7

15.7: EXTENSION MESSAGES: Number of Households By Receiving Advice on the use of Organic Fertilisers By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Organic Fertilizer Use						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Total		
Mpanda	1,460	0	135	0	0	1,594	59,533	3
Sumbawanga Rural	10,561	357	0	361	0	11,279	68,935	16
Nkansi	452	82	78	0	0	612	30,483	2
Sumbawanga Urban	1,217	308	0	35	35	1,594	13,309	12
Total	13,689	746	213	396	35	15,080	172,261	9

15.8: EXTENSION MESSAGES: Number of Households By Receiving Advice on the use of Inorganic Fertilisers By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Inorganic Fertilizer Use						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Not applicable	Total		
Mpanda	1,998	2,019	133	0	135	4,285	59,533	7
Sumbawanga Rural	5,735	348	0	0	120	6,203	68,935	9
Nkansi	446	82	78	0	0	606	30,483	2
Sumbawanga Urban	1,213	103	0	67	0	1,384	13,309	10
Total	9,392	2,553	212	67	255	12,478	172,261	7

15.9: EXTENSION MESSAGES: Number of Households By Receiving Advice on the use of Improved seeds By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Use of Improved Seed						Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Not applicable	Total		
Mpanda	5,516	1,616	0	0	135	7,267	59,533	12
Sumbawanga Rural	8,837	822	115	0	120	9,893	68,935	14
Nkansi	820	82	0	78	0	980	30,483	3
Sumbawanga Urban	1,384	103	0	0	68	1,555	13,309	12
Total	16,557	2,623	115	78	323	19,696	172,261	11

15.9: EXTENSION MESSAGES: Number of Households By Receiving Advice on the use of Mechanisation By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Mechanisation / LST				Total Number of Households	% of total number of households
	Government	NGO / Development Project	Not applicable	Total		
Mpanda	402	0	0	402	59,533	1
Sumbawanga Rural	1,559	0	122	1,681	68,935	2
Nkansi	152	70	0	222	30,483	1
Sumbawanga Urban	0	35	33	68	13,309	1
Total	2,113	105	155	2,373	172,261	1

15.11: EXTENSION MESSAGES: Number of Households By Receiving Advice on the use of Irrigation Technology By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Irrigation Technology					Total	Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other			
Mpanda	529	404	0	133	0	1,066	59,533	2
Sumbawanga Rural	4,520	119	0	120	0	4,758	68,935	7
Nkansi	451	0	78	0	0	529	30,483	2
Sumbawanga Urban	341	104	0	0	35	480	13,309	4
Total	5,840	628	78	253	35	6,834	172,261	4

15.12: EXTENSION MESSAGES: Number of Households By Receiving Advice on the use of use of Crop storage By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Crop Storage				Total	Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm			
Mpanda	6,548	270	0	0	6,818	59,533	11
Sumbawanga Rural	10,437	119	109	121	10,785	68,935	16
Nkansi	992	0	78	78	1,149	30,483	4
Sumbawanga Urban	1,148	206	0	0	1,354	13,309	10
Total	19,125	595	187	199	20,106	172,261	12

15.13: EXTENSION MESSAGES: Number of Households By Receiving Advice on vermin control By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Vermin Control						Total	Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Not applicable				
Mpanda	803	0	0	135	0		938	59,533	2
Sumbawanga Rural	3,700	118	121	121	0		4,060	68,935	6
Nkansi	379	0	78	78	0		536	30,483	2
Sumbawanga Urban	342	35	0	0	35		412	13,309	3
Total	5,225	153	199	334	35		5,946	172,261	3
%	88	3	3	6	1		100		

15.14: EXTENSION MESSAGES: Number of Households By Receiving Advice on Agro-processing By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Agro-progressing					Total	Total Number of Households	% of total number of households
	Government	NGO / Development Project	Other	Not applicable				
Mpanda	1,467	0	135	0		1,602	59,533	3
Sumbawanga Rural	4,820	119	0	0		4,939	68,935	7
Nkansi	299	0	0	0		299	30,483	1
Sumbawanga Urban	207	136	0	35		378	13,309	3
Total	6,793	255	135	35		7,218	172,261	4

15.15: EXTENSION MESSAGES: Number of Households By Receiving Advice on Agro-Forestry By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Agro-Forestry						Total	Total Number of Households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable			
Mpanda	132	390	135	135	133	0	924	59,533	2
Sumbawanga Rural	3,813	119	121	121	0	121	4,293	68,935	6
Nkansi	377	78	0	0	0	0	455	30,483	1
Sumbawanga Urban	847	237	0	33	0	0	1,116	13,309	8
Total	5,168	823	255	289	133	121	6,789	172,261	4
%	76	12	4	4	2	2	100		

15.16: EXTENSION MESSAGES: Number of Households By Receiving Advice on Beekeeping By Source of Messages By District during

District	Beekeeping			
	Government	Total	Total Number of Households	% of total number of households
Mpanda	0	0	59,533	0
Sumbawanga Rural	602	602	68,935	1
Nkansi	0	0	30,483	0
Sumbawanga Urban	0	0	13,309	0
Total	602	602	172,261	0
%	100	100		

15.17: EXTENSION MESSAGES: Number of Households By Receiving Advice on Fish Farming By Source of Messages By District during 2002/03 agricultural year, Rukwa Region.

District	Fish Farming			
	Government	Total	Total Number of Households	% of total number of households
Mpanda	0	0	59,533	0.0
Sumbawanga Rural	241	241	68,935	0.4
Nkansi	0	0	30,483	0.0
Sumbawanga Urban	0	0	13,309	0.0
Total	241	241	172,261	0.0

15.18: CROP EXTENSION" Number of Households Receiving and Adapting Extension Messages by Type of Message and (Part 1) During the 2002/03 Agricultural Year, Rukwa Region.

District	Spacing			Use of Agrochemicals			Erosion Control		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Mpanda	8,785	6,538	74	3,591	2,386	66	1,857	803	43
Sumbawanga Rural	12,152	11,556	95	8,579	3,184	37	7,461	3,331	45
Nkansi	1,601	1,530	96	548	322	59	687	534	78
Sumbawanga Urban	1,864	1,629	87	1,492	1,188	80	1,088	685	63
Total	24,402	21,252	87	14,209	7,080	50	11,093	5,352	48

15.19: CROP EXTENSION" Number of Households Receiving and Adapting Extension Messages by Type of Message and (Part 2) During the 2002/03 Agricultural Year, Rukwa Region.

District	Organic Fertilizer Use			Inorganic Fertilizer Use			Use of Improved Seed		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Mpanda	1,594	531	33	4,153	3,225	78	7,267	2,922	40
Sumbawanga Rural	11,286	5,040	45	5,972	932	16	9,893	2,548	26
Nkansi	612	310	51	606	70	12	980	305	31
Sumbawanga Urban	1,525	1,221	80	1,314	405	31	1,554	372	24
Total	15,017	7,101	47	12,045	4,633	38	19,694	6,147	31

15.20: CROP EXTENSION" Number of Households Receiving and Adapting Extension Messages by Type of Message and (Part 3) During the 2002/03 Agricultural Year, Rukwa Region.

District	Mechanisation / LST			Irrigation Technology			Crop Storage		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Mpanda	135	0	0	800	671	84	6,818	4,829	71
Sumbawanga Rural	1,442	0	0	4,530	1,539	34	10,785	10,659	99
Nkansi	222	153	69	459	236	52	1,149	1,149	100
Sumbawanga Urban	35	103	296	380	309	81	1,319	1,253	95
Total	1,833	255	14	6,169	2,755	45	20,071	17,889	89

15.20: CROP EXTENSION" Number of Households Receiving and Adapting Extension Messages by Type of Message and (Part 4) During the 2002/03 Agricultural Year, Rukwa Region.

District	Vermin Control			Agro-progressing			Agro-forestry		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Mpanda	804	670	83	1,602	1,468	92	924	536	58
Sumbawanga Rural	4,060	3,346	82	4,707	4,467	95	4,293	2,870	67
Nkansi	536	536	100	299	299	100	373	225	60
Sumbawanga Urban	174	277	159	343	276	81	1,116	716	64
Total	5,573	4,830	87	6,951	6,510	94	6,707	4,347	65

15.20: CROP EXTENSION" Number of Households Receiving and Adapting Extension Messages by Type of Message and (Part 5 During the 2002/03 Agricultural Year, Rukwa Region.

District	Agro-forestry			Beekeeping			Fish Farming		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Mpanda	924	536	58	0	0		0	0	0
Sumbawanga Rural	4,293	2,870	67	481	240	50	241	0	0
Nkansi	373	225	60	0	0	0	0	0	0
Sumbawanga Urban	1,116	716	64	0	0	0	34	0	0
Total	6,707	4,347	65	481	240	50	241	34	0

ANIMAL CONTRIBUTION TO CROP PRODUCTION

17.1: ANIMAL CONTRIBUTION TO CROP PRODUCTION: Number of Households Using Draft Animal to Cultivate Land By District During 2002/03 agricultural year, Rukwa Region

District	Households Using Draft Animals		Household Not Using Draft Animals		Total households
	No. of Households	%	No. of Households	%	
Mpanda	4,121	7	55,412	93	59,533
Sumbawanga Rural	47,115	68	21,820	32	68,935
Nkansi	16,622	55	13,861	45	30,483
Sumbawanga Urban	11,547	87	1,762	13	13,309
Total	79,406	46	92,855	54	172,261

17.2 ANIMAL CONTRIBUTION TO CROP PRODUCTION: Type of Draft By Number Owned, Used and Area Cultivated (Acres) By District During 2002/03 Agriculture Year

District	Type of Craft														
	Oxen			Bulls			Cows			Donkeys			Total		
	Number Owned	Number Used	Area Cultivated (acres)	Number Owned	Number Used	Area Cultivated (acres)	Number Owned	Number Used	Area Cultivated (acres)	Number Owned	Number Used	Area Cultivated (acres)	Number Owned	Number Used	Area Cultivated (acres)
Mpanda	15,523	22,217	38,844	8,368	0	0	35,062	0	0	392	392	1,308	59,346	22,609	40,152
Sumbawanga Rural	60,728	140,521	259,293	35,116	333	0	86,142	3,684	0	2,493	116	0	184,479	144,654	259,293
Nkansi	30,126	55,435	97,932	16,222	3,150	23	28,090	0	0	5,708	0	0	80,146	58,585	97,955
Sumbawanga Urban	13,079	29,683	44,003	5,342	2,255	51	17,338	1,469	17	6,535	336	0	42,294	33,743	44,071
Total	119,456	247,856	440,072	65,048	5,738	74	166,631	5,153	17	15,128	844	1,308	366,264	259,592	441,471

17.3 ANIMAL CONTRIBUTION TO CROPS: Number of Crop Growing Households Using Organic Fertilizer By Regio During 2002/03 Agriculture Year

District	Did you apply organic fertilizer during 2002/03?				
	Using Organic Fertilizer		Not Using Organic Fertilizer		Total
	Number	%	Number	%	Number
Mpanda	2,401	12	56,864	38	59,266
Sumbawanga Rural	9,358	45	59,577	39	68,935
Nkansi	3,476	17	27,007	18	30,483
Sumbawanga Urban	5,361	26	7,948	5	13,309
Total	20,597	100	151,397	100	171,993

17.4 ANIMAL CONTRIBUTION TO CROPS: Area of Farm Yard Manure and Compost

District	Farm Yard Manure Area Applied		Compost Area Applied		Total	
	Area (%)	%	Area (%)	%	Area (%)	%
Mpanda	1,063	7	357	65	1,420	9
Sumbawanga Rural	7,851	50	63	11	7,914	49
Nkansi	3,398	22	80	15	3,478	22
Sumbawanga Urban	3,286	21	52	9	3,338	21
Total	15,598	100	551	100	16,150	100

CATTLE PRODUCTION

18.7 CATTLE PRODUCTION: Number of Indigenous Cattle By Category and as of 1st October, 2003

District	Category - Improved Beef Cattle						Total
	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	
Mpanda	0	0	0	0	0	0	0
Sumbawanga Rural	0	0	0	0	0	0	0
Nkansi	0	0	0	0	0	0	0
Sumbawanga Urban	171	0	0	104	0	0	274
Total	171	0	0	104	0	0	274

18.8 CATTLE PRODUCTION: Number of Indigenous Cattle By Category and as of 1st October, 2003

District	Category - Total Cattle						Total
	Bulls	Cows	Steers	Heifers	Male Calves	Female Calves	
Mpanda	6,468	24,354	18,083	17,365	7,648	8,952	82,871
Sumbawanga Rural	18,228	89,268	60,245	22,211	17,627	29,041	236,620
Nkansi	8,838	46,349	34,172	25,218	14,651	19,852	149,080
Sumbawanga Urban	2,880	10,935	11,831	3,834	2,942	3,734	36,156
Total	36,413	170,907	124,331	68,627	42,868	61,580	504,727

GOAT PRODUCTION

19.1: GOAT PRODUCTION: Total Number of Goats by Type and District as of 2st October, 2003

District	Indigenous			Improved for Meat			Improved Dairy			Total Goat	
	Number of Households	Number of Goat	%	Number of Households	Number of Goat	%	Number of Households	Number of Goat	%	Number of Households	Number of Goat
Mpanda	16,384	116,377	98	134	806	1	269	1,077	1	16,384	118,261
Sumbawanga	16,895	116,919	99	346	1,044	1	107	645	1	16,895	118,607
Nkansi	6,538	42,696	100	0	0	0	0	0	0	6,538	42,696
Sumbawanga	3,334	12,869	97	104	416	3	0	0	0	3,334	13,285
Total	43,150	288,862	99	584	2,265	1	377	1,722	1	43,150	292,849

19.2: GOAT PRODUCTION: Total Number of Households Rearing Goats and Heads of Goats by Herd size on 1st October 2003

Herd Size	Number of Household	%	Number of Goat	%	Average Number Per Household
1-4	20,967	48.6	51,397	17.6	2
5-9	12,819	29.7	82,580	28.2	6
10-14	5,226	12.1	60,060	20.5	11
15-19	1,578	3.7	26,125	8.9	17
20-24	1,199	2.8	24,764	8.5	21
25-29	558	1.3	15,316	5.2	27
30-39	482	1.1	15,731	5.4	33
40+	321	0.7	16,877	5.8	53
Total	43,150	100.0	292,849	100.0	7

19.:3 GOAT PRODUCTION: Total Number of Goats by Category and Type of Goat as of 1st October, 2003 and District

Category of Goats	Number of Indigenous		Number of Improved for Meat		Number of Improved Dairy		Total Goat	
	Number	%	Number	%	Number	%	Number	%
Billy Goat	45,529	95	1,775	4	645	1	47,949	16
Castrated Goat	4,372	94	0	0	269	6	4,641	2
She Goat	149,160	100	70	0	0	0	149,229	51
Male Kid	45,118	98	109	0	808	2	46,035	16
She Kid	44,684	99	311	1	0	0	44,995	15
Total	288,862	99	2,265	1	1,722	1	292,849	100

19.4 GOAT PRODUCTION: Number of Indigenous Goat by Category and District as of 1st October, 2003

District	Type					Total
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	
Mpanda	19,821	1,679	60,811	17,727	16,339	116,377
Sumbawanga Rural	16,410	1,944	59,624	18,309	20,632	116,919
Nkansi	7,557	618	21,169	7,358	5,994	42,696
Sumbawanga Urban	1,741	130	7,555	1,724	1,719	12,869
Total	45,529	4,372	149,160	45,118	44,684	288,862

19.5: GOAT PRODUCTION: Number of Improved Meat Goat by Category and District as of 1st October, 2003

District	Number of Improved for Meat					Total
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	
Mpanda	806	0	0	0	0	806
Sumbawanga Rural	691	0	0	109	243	1,044
Nkansi	0	0	0	0	0	0
Sumbawanga Urban	278	0	70	0	68	416
Total	1,775	0	70	109	311	2,265

19.6: GOAT PRODUCTION: Number of Improved Dairy Goat by Category and District as of 1st October,

District	Number of Improved Dairy					
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Mpanda	.	269	.	808	.	1,077
Sumbawanga Rural	645	645
Nkansi
Sumbawanga Urban
Total	645	269	.	808	.	1,722

19.7: GOAT PRODUCTION: Number of Total Goat by Category and District as of 1st October, 2003

District	Total Goat					
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Mpanda	20,627	1,948	60,811	18,535	16,339	118,261
Sumbawanga Rural	17,746	1,944	59,624	18,418	20,876	118,607
Nkansi	7,557	618	21,169	7,358	5,994	42,696
Sumbawanga Urban	2,019	130	7,625	1,724	1,787	13,285
Total	47,949	4,641	149,229	46,035	44,995	292,849

SHEEP PRODUCTION

20.1: SHEEP PRODUCTION: Total Number of Sheep By Breed Type During the 2002/03 Agriculture Year

Breed	Number of Indigenous		Number of Improved for Mutton		Total Sheep	
	Number	%	Number	%	Number	%
Ram	6,365	100	0	0	6,365	18
Castrated Sheep	134	100	0	0	134	0
She Sheep	18,517	100	0	0	18,517	51
Male Lamb	5,311	100	0	0	5,311	15
She Lamb	5,746	100	0	0	5,746	16
Total	36,073	100	0	0	36,073	100

20.2: SHEEP PRODUCTION: Number of Households Rearing Sheep by District as of 1st October, 2002/03 Agriculture Year

District	Households Raising Sheep		Households Not Raising Sheep		Total Number of Households	Total Livestock Keeping Households
	Number	%	Number	%		
Mpanda	1,955	3	57,579	97	59,533	0
Sumbawanga Rural	1,478	2	67,457	98	68,935	416
Nkansi	1,237	4	29,246	96	30,483	0
Sumbawanga Urban	99	1	13,210	99	13,309	0
Total	4,770	3	167,491	97	172,261	416

20.3: SHEEP PRODUCTION: Number of Sheep by Type of Sheep and District as of 1st October, 2002/03

District	Number of Indigenous		Number of Improved for Mutton		Total Sheep	
	Number	%	Number	%	Number	%
Mpanda	13,967	100	0	0	13,967	39
Sumbawanga Rural	10,953	100	0	0	10,953	30
Nkansi	10,756	100	0	0	10,756	30
Sumbawanga Urban	397	100	0	0	397	1
Total	36,073	100	0	0	36,073	100

20.4: Number of Sheep per Household by Category and district as of 1st October 2003.

District	Number of Indigenous		Number of Improved for Mutton		Total Households Raising Sheep	Average Sheep
	Number of Households	Average Sheep	Number of Households	Average Sheep		
Mpanda	1,955	0	0	0	1,955	7
Sumbawanga Rural	1,478	0	0	0	1,478	7
Nkansi	1,237	0	0	0	1,237	9
Sumbawanga Urban	99	0	0	0	99	4
Total	4,770	0	0	0	4,770	8

20.5: Number of Households and Heads of Sheep by Herd Size on 1st October 2003.

Herd Size	Number of Household	%	Number of Sheep	%	Average Number Per Household
1-4	2,021	42	5,313	15	3
5-9	1,574	33	11,157	31	7
10-14	448	9	4,833	13	11
15-19	442	9	7,296	20	17
20-24	130	3	2,608	7	20
30-39	154	3	4,866	13	32
Total	4,770	100	36,073	100	8

20.6: SHEEP PRODUCTION: Total Number of Indigenous Sheep by Category of Sheep and District as of 1st October, 2002/03 Agriculture Year

District	Number of Indigenous Sheep					Total Number of Indigenous
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	
Mpanda	1,801	134	7,073	2,216	2,743	13,967
Sumbawanga Rural	2,184	0	5,422	1,734	1,613	10,953
Nkansi	2,281	0	5,756	1,361	1,357	10,756
Sumbawanga Urban	99	0	265	0	33	397
Total	6,365	134	18,517	5,311	5,746	36,073

20.8 SHEEP PRODUCTION: Total Number of Sheep by Category of Sheep and District as of 1st October, 2002/03 Agriculture Year

District	Total Sheep					Total Sheep
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	
Mpanda	1,801	134	7,073	2,216	2,743	13,967
Sumbawanga Rural	2,184	.	5,422	1,734	1,613	10,953
Nkansi	2,281	.	5,756	1,361	1,357	10,756
Sumbawanga Urban	99	.	265	.	33	397
Total	6,365	134	18,517	5,311	5,746	36,073

PIGS PRODUCTION

21.1 PIG PRODUCTION: Number of Households Raising Pig by District during 2002/03 Agriculture Year

District	Households Raising Pig		Herds of Pigs		Average Number Per Household
	Number	%	Number	%	
1-4	8,000	66	13,781	27	2
5-9	2,769	23	19,645	38	7
10-14	859	7	9,228	18	11
15-19	163	1	2,526	5	16
30-39	194	2	5,968	12	31
40+	115	1	691	1	6
Total	12,101	100	51,840	100	4

21.2: PIG PRODUCTION: Number of Households Raising Pig by District during 2002/03 Agriculture Year

District	Number of Household	Number of Pig	Average Number Per Household
Mpanda	1,343	4,837	4
Sumbawanga Rural	8,350	36,455	4
Nkansi	1,007	8,396	8
Sumbawanga Urban	1,400	2,152	2
Total	12,101	51,840	4

21.3: PIG POPULATION: Total Number of Pigs by Category of Pigs and District as of 1st October, 2003

District	Pigs Type					Total
	Boar	Castrated Male	Sow / Gilt	Male Piglet	She Piglet	
Mpanda	804	.	1,074	1,076	1,883	4,837
Sumbawanga Rural	3,968	334	11,131	10,305	10,716	36,455
Nkansi	608	80	1,722	3,557	2,428	8,396
Sumbawanga Urban	373	35	1,508	136	101	2,152
Total	5,753	449	15,435	15,074	15,128	51,840

LIVESTOCK PESTS AND PARASITE CONTROL

OTHER LIVESTOCK

23a: OTHER LIVESTOCK: Total number of Other Livestock by Type as of 1st October 2003

Type	Chicken		Others	
	Number	%	Type	Number
Indigenous Chicken	1,114,556	99	Ducks	88,647
Layer	7,261	1	Turkeys	2,686
Broiler	615	0	Rabbits	17,876
		0	Donkeys	11,190
Total	1,122,432	100		120,399

23b: OTHER LIVESTOCK: Number of chicken by Category of Chicken and District as of 1st October, 2003

District	Number of Chicken			
	Indigenous Chicken	Layer	Broiler	Total
Mpanda	492,601		0	492,601
Sumbawanga Rural	443,312	2,414	213	445,939
Nkasi	129,096	1,144	402	130,643
Sumbawanga Urban	49,547	3,703	0	53,250
Total	1,114,556	7,261	615	1,122,432

1,122,432

23d: OTHER LIVESTOCK: Number of households with chicken and Category of Chicken by Flock Size

Flock Size	Chicken rearing Households		Number of chicken	Average chicken per household
	Number	%		
1 - 4	38,452	35	92,665	2
5 - 9	31,281	28	204,580	7
10 - 19	25,278	23	321,753	13
20 - 29	6,961	6	155,776	22
30 - 39	4,248	4	136,546	32
40 - 49	2,087	2	87,172	42
50 - 99	1,365	1	87,994	64
100+	240	0	35,946	150
Total	109,912	100	1,122,432	10

23c: OTHER LIVESTOCK: Number of Households Rearing and number of Other Livestock by Type and District

District	Type of Livestock				
	Ducks	Turkeys	Rabbits	Donkeys	Other
Mpanda	38,381	0	5,650	4,265	0
Sumbawanga Rural	40,326	2,516	5,263	3,578	7,644
Nkasi	9,294	0	3,561	2,629	9,765
Sumbawanga Urban	646	170	3,402	718	0
Total	88,647	2,686	17,876	11,190	17,409

FISH FARMING

28.1a: FISH FARMING: Number of Agricultural Households involved in Fish Farming and District, 2002/03 Agricultural Year

District	Was fish farming carried out by this household during 2002/03?				
	Yes		No		Total
	Number	%	Number	%	Number
Mpanda	0	0.0	59,533	100.0	59,533
Sumbawanga Rural	0	0.0	68,935	100.0	68,935
Nkasi	80	0.3	30,403	99.7	30,483
Sumbawanga Urban	0	0.0	13,309	100.0	13,309
Total	80	0.0	172,181	100.0	172,261

28.2a: FISH FARMING: Number of Agricultural Households By System of Farming and District, 2002/03 Agricultural Year

District	System of Fish Farming	
	Natural Pond	Total
Nkasi	80.2	80.2
Total	80.2	80.2

28.2b FISH FARMING: Number of Agricultural Households By Source of Fingerlings and District, 2002/03 Agricultural Year

District	Source of Fingerlings	
	Neighbour	Total
	Number	Number
Nkasi	80	80
Total	80	80

28.2c: FISH FARMING: Number of Agricultural Households By Location of Selling Fish and District, 2002/03 Agricultural Year

District	Where sold	
	Trader at Farm	Total
	Number	Number
Nkasi	80	80
Total	80	80

28.5 FISH FARMING: Total Number of Fish Harvested by Type and District, 2002/03 Agricultural Year

District	Number of Tilapia	Number of Carp	Number of Others
Nkasi	8,018	0	0
Total	8,018	0	0

LIVESTOCK EXTENSION

29.1a: LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Advice By District during the 2002/03 Agricultural Year

District	Received Livestock Advice		Did NOT Receiving Livestock Advice		Total	Total Number of households raising livestock	%
	Number	%	Number	%			
Mpanda	3,632	6	55,901	94	59,533	11,633	31.2
Sumbawanga Rural	9,265	13	59,671	87	68,935	29,751	31.1
Nkasi	1,999	7	28,485	93	30,483	10,697	18.7
Sumbawanga Urban	2,170	16	11,139	84	13,309	5,695	38.1
Total	17,065	10	155,195	90	172,261	57,776	29.5

29.1b Livestock Extension Providers: Number of Households By Source of Extension and District, 2002/03 Agricultural Year

District	Source of Advice				
	Government	NGO / Development Project	Co-operative	Large Scale Farmer	Other
Mpanda	2,565	0	0	134	0
Sumbawanga Rural	5,522	0	121	120	120
Nkasi	1,399	0	0	78	0
Sumbawanga Urban	1,967	35	0	134	0
Total	11,452	35	121	466	120

29.1c LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Proper Milking By Source and District, 2002/03 Agricultural Year

District	Advice		Total	Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project			
Mpanda	135	0	135	11,633	1
Sumbawanga Rural	1,425	0	1,425	29,751	5
Nkasi	0	0	0	10,697	0
Sumbawanga Urban	169	33	202	5,695	4
Total	1,729	33	1,762		

29.1d LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Advice on Milk Hygiene By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Milk Hygiene			Total	Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other			
Mpanda	135	0	0	135	11,633	1.2
Sumbawanga Rural	1,662	0	0	1,662	29,751	5.6
Nkansi	0	0	0	0	10,697	0.0
Sumbawanga Urban	238	33	0	271	5,695	4.8
Total	2,035	33	0	2,068	57,776	3.6
%	98	2	0	100		

29.1e LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Advice on Disease Control By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Disease Control						Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Co-operative	Large Scale Farmer	Other	Total		
Mpanda	2,565	0	0	134	0	2,699	11,633	23
Sumbawanga Rur	5,522	0	121	120	120	5,882	29,751	20
Nkasi	1,399	0	0	78	0	1,477	10,697	14
Sumbawanga Urb	1,967	35	0	134	0	2,135	5,695	37
Total	11,452	35	121	466	120	12,193	57,776	21
%	93.9	0.3	1.0	3.8	1.0	100.0		

29.1f LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Herd /Flock Size and Selection By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Herd Flock/Flock Size				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other	Total		
Mpanda	403	0	0	403	11,633	3
Sumbawanga Rur	1,556	0	120	1,676	29,751	6
Nkasi	153	0	0	153	10,697	1
Sumbawanga Urb	69	35	0	104	5,695	2
Total	2,182	35	120	2,337	57,776	4
%	93.4	1.5	5.1	100		

29.1g LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Advice Pasture Establishment and Selection By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Pasture Establishment			Total	Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other			
Mpanda	134	0	0	134	11,633	1
Sumbawanga Rural	1,302	117	0	1,419	29,751	5
Nkansi	0	0	0	0	10,697	0
Sumbawanga Urban	170	100	0	270	5,695	5
Total	1,606	216	0	1,823	57,776	3
%	88	12	0	100		

29.1h LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Advice on Group Formation and Strengthening By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Group Formation			Total	Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Co-operative			
Mpanda	267	0	0	267	11,633	2
Sumbawanga Rural	2,934	0	240	3,174	29,751	11
Nkasi	150	0	0	150	10,697	1
Sumbawanga Urban	337	234	0	571	5,695	10
Total	3,688	234	240	4,163	57,776	7
%	89	6	6	100		

29.1i LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Advice on Calf Rearing By Source and District, 2002/03 Agricultural Year

District	Source of Advice on Calf Rearing			Total	Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Other			
Mpanda	404	0	0	404	11,633	3
Sumbawanga Rural	2,143	0	0	2,143	29,751	7
Nkasi	78	82	0	160	10,697	1
Sumbawanga Urban	205	101	0	306	5,695	5
Total	2,830	183	0	3,013	57,776	5
%	94	6	0	100		

29.1j LIVESTOCK EXTENSION: Number of Agricultural Households Receiving Extension Advice on Use of Improved Bulls By Source and District, 2002/03 Agricultural Year

District	Source of Advice on the Use of Improved Bulls				Total Number of households raising livestock	% receiving advice out of total
	Government	NGO / Development Project	Co-operative	Total		
Mpanda	269	0	0	269	11,633	2
Sumbawanga Rural	1,782	0	121	1,902	29,751	6
Nkasi	162	0	0	162	10,697	2
Sumbawanga Urban	169	101	0	270	5,695	5
Total	2,382	101	121	2,604	57,776	5
%	91	4	5	100		

29.1j LIVESTOCK EXTENSION: Number of Agricultural Households By Quality of Extension Services and District, 2002/03 Agricultural Year

District	Quality of Service										Total Number
	Very Good		Good		Average		Poor		No Good		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Mpanda	130	3	1,734	44	1,309	33	742	19	0	0	3,916
Sumbawanga Rural	362	4	6,295	66	2,284	24	0	0	600	6	9,542
Nkasi	78	4	1,618	81	302	15	0	0	0	0	1,999
Sumbawanga Urban	69	3	2,097	85	305	12	0	0	0	0	2,472
Total	641	4	11,745	66	4,200	23	742	4	600	3	17,928

ACCESS TO INFRASTRUCTURE AND OTHER SERVICES

Table 33.01a: Mean distances from horders dwellings to Infrastructures and services by District

District	Mean Distance to										
	Secondary Schools	Primary Schools	All weather roads	Feeder Roads	Hospitals	Health Clinics	Regional Capital	Primary Markets	Secondary Market	Tertiary Market	Tarmac Roads
Mpanda	28	3	4	1	74	7	284	23	27	70	303
Sumbawanga Rural	21	2	6	1	90	10	92	8	19	81	129
Nkasi	37	2	7	2	49	7	109	23	25	43	146
Sumbawanga Urban	8	1	1	1	15	6	15	11	12	14	37
Total	25	2	5	1	72	8	156	16	22	66	185

Regional Capital	75
All Weather Roads	5
Tarmac Roads	185
Hospitals	72
Tertiary Markets	66
Secondary Market	22
Secondary Schools	25
Primary Markets	16
Health Clinics	8
Primary Schools	2
Feeder Roads	1

33.19d TYPE OF SERVICE: Number of Households by Satisfaction of Using Plant Protection Lab and District, 2002/03 Agricultural Year

District	Plant Protection Lab.										Total Number of Households
	Very Good		Good		Average		Poor		No good		
	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	
Mpanda	0	0	0	0	135	100	0	0	0	0	135
Sumbawanga Rural	0	0	0	0	0	0	482	25	1,463	75	1,945
Nkasi	0	0	0	0	0	0	522	78	147	22	669
Sumbawanga Urban	0	0	0	0	0	0	32	100	0	0	32
Total	0	0	0	0	135	0	1,036	37	1,610	58	2,781

33.19e TYPE OF SERVICE: Number of Households by Satisfaction of using Land Registration Office and District, 2002/03 Agricultural Year

District	Land Registration Office										Total Number of Households
	Very Good		Good		Average		Poor		No good		
	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	
Mpanda	532	40	269	20	135	10	262	20	132	10	1,330
Sumbawanga Rural	0	0	0	0	808	33	601	25	1,018	42	2,426
Nkasi	0	0	0	0	0	0	369	71	147	29	516
Sumbawanga Urban	0	0	205	30	208	30	238	35	35	5	686
Total	532	11	474	10	1,150	23	1,470	30	1,332	27	4,958

33.19f TYPE OF SERVICE: Number of Households by Satisfaction of using Livestock Development centre and Registration Office and District, 2002/03 Agricultural Year

District	Livestock Development Centre										Total Number of Households
	Very Good		Good		Average		Poor		No good		
	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	
Mpanda	0	0	135	35	120	31	135	35	0		389
Sumbawanga Rural	0	0	688	23	1,143	38	583	20	565	19	2,979
Nkasi	0	0	0	0	78	12	442	66	147	22	667
Sumbawanga Urban	0	0	103	76	0	0	32	24	0	0	135
Total	0	0	925	22	1,341	32	1,191	29	713	17	4,170

33.19G TYPE OF SERVICE: Number of Households by Level of satisfaction of the Service and District, 2002/03 Agricultural Year

TYPE OF SERVICE	LEVEL OF SATISFACTION OF THE SERVICE										Total Number of Households
	Very Good		Good		Average		Poor		No good		
	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	No. of Households	%	
Veterinary Clinic	1,358	0	6,158	1	7,035	1	7,494	1	7,751	1	1,033,565
Extension Services	479	6	2,250	30	2,107	28	1,483	20	1,123	15	7,442
Research Station	78	2	338	9	862	22	1,204	31	1,391	36	3,873
Plant Protection Lab	0	0	0	0	135	5	1,036	37	1,610	58	2,781
Land Registration Office	532	11	474	10	1,150	23	1,470	30	1,332	27	4,958
Livestock Development Centre		0	925	22	1,341	32	1,191	29	713	17	4,170

HOUSEHOLDS FACILITIES

34.4 Number of Agricultural Households by Main Source of Energy Used for Lighting and District, 2002/03 Agricultural Year

Main Source of Energy for Lighting	District								Total	
	Mpanda		Sumbawanga Rural		Nkasi		Sumbawanga Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Mains Electricity	133	30	235	53	72	16	0	0	440	0
Hurricane Lamp	11,300	39	9,321	32	7,648	26	803	3	29,072	17
Pressure Lamp	2,239	38	2,410	41	1,064	18	209	4	5,922	3
Wick Lamp	45,056	34	53,197	40	21,462	16	12,228	9	131,944	77
Candles	0	0	115	61	72	39	0	0	187	0
Firewood	806	18	3,538	78	164	4	34	1	4,542	3
Other	0	0	120	78	0	0	34	22	154	0
Total Number of Households	59,533	35	68,935	40	30,483	18	13,309	8	172,261	100

34.5: Number of Agricultural Households by Main Source of Energy Used for Cooking and District, 2002/03 Agricultural Year

Main Source of Energy for Lighting	District								Total	
	Mpanda		Sumbawanga Rural		Nkasi		Sumbawanga Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%
Charcoal	1,877	36	1,526	29	1,620	31	162	3	5,185	3
Firewood	57,657	35	67,095	40	28,793	17	13,112	8	166,657	97
Crop Residues	0	0	314	82	70	18	0	0	385	0
Livestock dung	0	0	0	0	0	0	35	100	35	0
Total Number of Households	59,533	35	68,935	40	30,483	18	13,309	8	172,261	100

34.6: Number of Agricultural Households by Main Source of Drinking Water by Season (Wet and Dry) and District, 2002/03 Agricultural Year

Source	Season	District			
		Mpanda	Sumbawanga Rural	Nkasi	Sumbawanga Urban
Piped Water	Wet	11,669	11,568	2,105	4,523
	Dry	11,012	9,437	2,176	3,977
Protected Well	Wet	14,432	12,777	14,981	1,468
	Dry	15,098	12,462	14,115	1,367
Protected / Covered Spring	Wet	940	2,066	141	970
	Dry	805	2,421	141	935
Uprotected Well	Wet	13,336	18,799	4,796	3,534
	Dry	14,894	21,297	4,797	3,669
Unprotected Spring	Wet	6,247	5,363	3,995	1,779
	Dry	5,985	5,837	3,637	1,877
Surface Water (Lake / Dam / River / Stream)	Wet	12,392	17,780	4,068	551
	Dry	11,215	17,021	5,373	1,067
Covered Rainwater Catchment	Wet	0	0	152	0
	Dry	0	0	80	0
Uncovered Rainwater Catchment	Wet	383	583	165	452
	Dry	389	460	82	417
Tanker Truck	Wet	134	0	0	0
	Dry	134	0	0	0
Other	Wet	0	0	81	32
	Dry	0	0	81	0
Total Agricultural Households per District		59,533	68,935	30,483	13,309

34.7: Proportion of Agricultural Households by Main Source of Drinking Water by Season (Wet and Dry) and District, 2002/03 Agricultural Year

Source	Season	District			
		Mpanda	Sumbawanga Rural	Nkasi	Sumbawanga Urban
Piped Water	Wet	20	17	7	34
	Dry	18	14	7	30
Protected Well	Wet	24	19	49	11
	Dry	25	18	46	10
Protected / Covered Spring	Wet	2	3	0	7
	Dry	1	4	0	7
Uprotected Well	Wet	22	27	16	27
	Dry	25	31	16	28
Unprotected Spring	Wet	10	8	13	13
	Dry	10	8	12	14
Surface Water (Lake / Dam / River / Stream)	Wet	21	26	13	4
	Dry	19	25	18	8
Covered Rainwater Catchment	Wet	0	0	0	0
	Dry	0	0	0	0
Uncovered Rainwater Catchment	Wet	1	1	1	3
	Dry	1	1	0	3
Tanker Truck	Wet	0	0	0	0
	Dry	0	0	0	0
Other	Wet	0	0	0	0
	Dry	0	0	0	0

Distance to main Source of Drinking Water	Season	District			
		Mpanda	Sumbawanga Rural	Nkasi	Sumbawanga Urban
Less than 100m	Wet	2,257	6,975	960	232
	Dry	1,860	6,855	984	100
100 - 299 m	Wet	13,639	13,807	9,151	2,842
	Dry	12,599	12,188	8,889	2,809
300 - 499 m	Wet	6,570	6,549	5,759	2,044
	Dry	6,307	5,480	5,462	1,979
500 - 999 m	Wet	16,234	14,640	9,572	4,718
	Dry	16,231	15,700	9,364	4,682
1 - 1.99 Km	Wet	12,611	18,849	3,994	2,383
	Dry	11,672	15,726	4,269	2,276
2 - 2.99 Km	Wet	4,103	5,700	966	918
	Dry	5,414	8,134	1,471	1,259
3 - 4.99 Km	Wet	3,449	2,072	0	102
	Dry	4,244	3,582	0	134
5 - 9.99 Km	Wet	671	343	82	69
	Dry	1,206	1,270	46	69

Distance to main Source of Drinking Water	Season	District			
		Mpanda	Sumbawanga Rural	Nkasi	Sumbawanga Urban
Less than 100m	Wet	4	10	3	2
	Dry	3	10	3	1
100 - 299 m	Wet	23	20	30	21
	Dry	21	18	29	21
300 - 499 m	Wet	11	9	19	15
	Dry	11	8	18	15
500 - 999 m	Wet	27	21	31	35
	Dry	27	23	31	35
1 - 1.99 Km	Wet	21	27	13	18
	Dry	20	23	14	17
2 - 2.99 Km	Wet	7	8	3	7
	Dry	9	12	5	9
3 - 4.99 Km	Wet	6	3	0	1
	Dry	7	5	0	1
5 - 9.99 Km	Wet	1	0	0	1
	Dry	2	2	0	1

34.10: Number of Agricultural Households by Time spent to and from Main Source of Drinking Water by Season (Wet and Dry) and District, 2002/03 Agricultural Year

Distance to main Source of Drinking Water	Season	District			
		Mpanda	Sumbawanga Rural	Nkasi	Sumbawanga Urban
Less than 10	Wet	808	1,687	151	132
	Dry	672	1,330	151	136
10 - 19 Minutes	Wet	12,900	12,596	12,451	3,315
	Dry	11,843	12,142	12,136	3,349
20 - 29 Minutes	Wet	6,191	9,872	5,629	2,420
	Dry	5,925	8,218	5,617	2,420
30 - 39 Minutes	Wet	15,369	21,137	5,495	3,730
	Dry	15,105	20,338	5,601	3,285
40 - 49 Minutes	Wet	4,598	5,824	1,212	1,157
	Dry	4,456	6,273	1,080	1,159
50 - 59 Minutes	Wet	5,052	3,156	3,267	883
	Dry	4,521	3,281	3,229	852
above one Hour	Wet	14,615	14,663	2,279	1,672
	Dry	17,011	17,354	2,670	2,109

34.11: Proportion of Agricultural Households by Time spent to and from Main Source of Drinking Water by Season (Wet and Dry) and District, 2002/03 Agricultural Year

Distance to main Source of Drinking Water	Season	District			
		Mpanda	Sumbawanga Rural	Nkasi	Sumbawanga Urban
Less than 10	Wet	1	2	0	1
	Dry	1	2	0	1
10 - 19 Minutes	Wet	22	18	41	25
	Dry	20	18	40	25
20 - 29 Minutes	Wet	10	14	18	18
	Dry	10	12	18	18
30 - 39 Minutes	Wet	26	31	18	28
	Dry	25	30	18	25
40 - 49 Minutes	Wet	8	8	4	9
	Dry	7	9	4	9
50 - 59 Minutes	Wet	8	5	11	7
	Dry	8	5	11	6
above one Hour	Wet	25	21	7	13
	Dry	29	25	9	16

34.12: Number of Households by Number of Meals the Household Normally Took per Day by District

Number of Meals per Day	District								Total	
	Mpanda		Sumbawanga Rural		Nkasi		Sumbawanga Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Household	%
One	2,412	21	5,766	50	950	8	2,495	19	11,622	7
Two	45,753	32	59,117	42	25,767	18	10,346	78	140,983	82
Three	11,368	58	4,052	21	3,684	19	468	4	19,573	11
Four	0	0	0	0	82	100	0	0	82	0
Total	59,533	35	68,935	40	30,483	18	13,309	8	172,261	100

34.13: Number of Households by Number of Days the Household Consumed Meat during the Preceding Week by District

Number of Days	District								Total	
	Mpanda		Sumbawanga Rural		Nkasi		Sumbawanga Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Household	%
Not Eaten	24,155	31	36,652	46	12,615	16	5,733	7	79,156	46
One	19,522	39	18,118	37	7,828	16	4,117	8	49,584	29
Two	10,142	37	9,995	37	4,699	17	2,362	9	27,198	16
Three	3,326	31	2,993	28	3,630	34	722	7	10,671	6
Four	1,852	48	707	18	1,014	26	275	7	3,848	2
Five	269	32	122	15	407	49	35	4	833	0
Six	135	65	0	0	72	35	0	0	207	0
Seven	133	17	348	46	217	28	65	9	763	0
Total	59,533	35	68,935	40	30,483	18	13,309	8	172,261	100

34.14: Number of Households by Number of Days the Household Consumed Fish during the Preceding

Number of Days	District								Total	
	Mpanda		Sumbawanga Rural		Nkasi		Sumbawanga Urban		Number of Household	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
Not Eaten	22,709	46	18,803	38	5,145	10	2,768	6	49,425	29
One	13,023	35	13,719	37	6,996	19	3,645	10	37,383	22
Two	11,770	38	10,652	34	4,573	15	3,976	13	30,971	18
Three	5,460	31	7,596	43	2,936	17	1,801	10	17,793	10
Four	2,535	25	4,907	48	1,998	20	687	7	10,127	6
Five	669	11	3,053	49	2,215	35	332	5	6,268	4
Six	255	7	2,235	59	1,275	34	0	0	3,766	2
Seven	3,113	19	7,970	48	5,345	32	100	1	16,528	10
Total	59,533	35	68,935	40	30,483	18	13,309	8	172,261	100

34.15: Number of Agricultural Households Reporting the Status of Food Satisfaction of the Household during the Preceding Year by District

Status of Food Satisfaction	District								Total	
	Mpanda		Sumbawanga		Nkasi		Sumbawanga Urban		Number of Household	%
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%		
Never	27,693	33	35,734	43	13,537	16	5,770	7	82,734	48
Seldom	20,904	37	21,058	38	9,689	17	4,198	8	55,848	32
Sometimes	3,196	27	5,964	50	1,777	15	1,020	9	11,957	7
Often	5,207	39	4,221	32	2,376	18	1,408	11	13,212	8
Always	2,533	30	1,958	23	3,105	36	914	11	8,509	5
Total	59,533	35	68,935	40	30,483	18	13,309	8	172,261	100

34-16: Number of Households by Main Source of Income and District, 2002/03 Agricultural Year

Main Source of Cash Income	District								Total	
	Mpanda		Sumbawanga Rural		Nkasi		Sumbawanga Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Household	%
Sales of Food Crops	30,051	36	36,355	43	12,760	15	5,141	6	84,309	49
Sale of Livestock	370	20	902	48	325	17	267	14	1,864	1
Sale of Livestock Products	134	32	0	0	82	20	204	48	420	0
Sales of Cash Crops	6,437	90	237	3	76	1	439	6	7,189	4
Sale of Forest Products	6,462	23	12,781	46	5,615	20	2,761	10	27,620	16
Business Income	6,462	23	12,781	46	5,615	20	2,761	10	27,620	16
Wages & Salaries in Cash	1,204	31	1,435	37	889	23	403	10	3,931	2
Other Casual Cash Earnings	9,401	38	7,637	31	4,707	19	2,743	11	24,488	14
Cash Remittance	1,028	24	1,938	45	856	20	509	12	4,331	3
Fishing	329	4	4,708	50	4,298	46	35	0	9,370	5
Other	383	48	0	0	79	10	335	42	796	0
Total	59,533	35	68,935	40	30,483	18	13,309	8	172,261	100

34.17: Number of households BY Type of Roofing Materials and District during 2002/03 Agricultural Year

Roofing Materials	District								Total	
	Mpanda		Sumbawanga Rural		Nkasi		Sumbawanga Urban			
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	Number of Household	%
Iron Sheets	9,757	30	12,882	40	5,006	16	4,437	14	32,082	19
Tiles	270	28	445	46	213	22	35	4	962	1
Concrete	135	62	0	0	82	38	0	0	216	0
Asbestos	536	25	1,371	63	278	13	0	0	2,186	1
Grass/leaves	47,907	37	49,355	38	24,538	19	8,078	6	129,877	75
Grass & Mud	929	13	4,883	70	367	5	759	11	6,937	4
Other	0	0	0	0	0	0	0	0	0	0
Total	59,533	35	68,935	40	30,483	18	13,309	8	172,261	100

APPENDIX III QUESTIONNAIRES

UNITED REPUBLIC OF TANZANIA

Confidential



Page Number

Agriculture Sample Census 2002/03



ACLF 1: Sub-village leader listing form

Region _____ Code	<input type="text"/> <input type="text"/>	Ward _____ Code	<input type="text"/> <input type="text"/> <input type="text"/>
District _____ Code	<input type="text"/> <input type="text"/>	Village _____ Code	<input type="text"/> <input type="text"/>

Name of Village Chairman:.....

Sub-village leader number	Name of sub-village leader	Number of households		Comments
		From office register	After enumeration	
(1)	(2)	(3)	(4)	(5)
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Total		<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	

Name of enumerator..... Signature Date.....
 Name of supervisor..... Signature Date.....

UNITED REPUBLIC OF TANZANIA



Confidential

Interval

Starting point

Page Number.....

Agriculture Sample Census 2002/03

ACL: 2 Household listing form - form for listing household heads and their agriculture activities

Region _____	Code <table border="1"><tr><td> </td><td> </td></tr></table>			Name of Sub-village Leader _____		
District _____	Code <table border="1"><tr><td> </td><td> </td></tr></table>			Subvillage leader code <table border="1"><tr><td> </td><td> </td></tr></table>		
Ward _____	Code <table border="1"><tr><td> </td><td> </td><td> </td><td> </td></tr></table>					
Village _____	Code <table border="1"><tr><td> </td><td> </td></tr></table>					
Name of Sub-village _____						

Household Number (1)	Household head name (2)	Fields + (3)	Number of									✓ if the respondent qualifies to be a farmer * (13)	Farmer Serial Numbers (14)			
			Cattle				Goats (8)	Sheep (9)	Pigs (10)	poultry/ducks (11)	Rabbit (12)					
			Total Number (4)	Adult male cattle (5)	Adult female cattle (6)	Calves (7)										
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Totals																

* NOTE: (Column 13) Place a "✓" if the household has at least 1 field over 25m² and/or keeps at least 1 Cow, 5 Goats/Sheep/Pigs or 50 Chicken/poultry or ducks

+(Column 3) A field must be at least 25 m²

Name of enumerator..... Signature Date.....

Name of supervisor..... Signature Date.....

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National Agriculture Sample Census 2002/03

ACLF: 3 Household listing of 15 selected farmers

Region _____
 District _____
 Ward _____
 Village _____

Code
 Code
 Code
 Code






S/N	Sub village leader number		Name of sub-village leader	Agriculture hh serial number	Name of selected head of household	Number of								
	(1)	(2)				(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(12)
01				<input type="text"/> <input type="text"/> <input type="text"/>										
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14				<input type="text"/> <input type="text"/> <input type="text"/>										
15				<input type="text"/> <input type="text"/> <input type="text"/>										

Name of Enumerator: _____ Signature _____ Date _____

Name of Supervisor _____ Signature _____ Date _____

Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development, Ministry of
 Cooperatives and Marketing and the National Bureau of Statistics

United Republic of Tanzania	
ACQ 1	
CONFIDENTIAL	
Small holder/Small Scale Farmer Questionnaire	
Agriculture Sample Census	
2002/2003	
	

Enumerator	Name	Signature									
	<input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Hour</td> <td style="width: 50%; text-align: center;">Minutes</td> </tr> <tr> <td style="text-align: center;"> <input type="text"/> <input type="text"/> </td> <td style="text-align: center;"> <input type="text"/> <input type="text"/> </td> </tr> <tr> <td style="text-align: center;">Start time</td> <td style="text-align: center;">End time</td> </tr> <tr> <td style="text-align: center;"> <input type="text"/> <input type="text"/> </td> <td style="text-align: center;"> <input type="text"/> <input type="text"/> </td> </tr> </table>	Hour	Minutes	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	Start time	End time	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>
Hour	Minutes										
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Start time	End time										
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Field level checking by:			<i>To be completed by the supervisor ONLY after field/farm level checking of the enumeration process. This should be countersigned by the enumerator.</i>								
District Supervisor:	Name	signature		Date							
Regional Supervisor:	Name	signature		Date							
National Supervisor:	Name	signature		Date							
District checking in Office:			<i>All questionnaires must be checked at the district office.</i>								
District Supervisor	Name	signature		Date							
For Use at National Level only:				<i>See back page for details of query</i>							
Data Entered by	Name	signature	Date								
Queried	Name	signature	Date								

Executed by the Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development,
 Ministry of Cooperatives and Marketing
 and
 National Bureau of Statistics

1.0 IDENTIFICATION DETAILS			
1.1 Location			
S/N	Location Name	Codes	
1.1.1	Region	<input type="text"/> <input type="text"/>	
1.1.2	District	<input type="text"/>	
1.1.3	Ward	<input type="text"/> <input type="text"/> <input type="text"/>	
1.1.4	Village	<input type="text"/> <input type="text"/>	
1.2 Details of the respondent and household head			
S/N		Codes	
1.2.1	Name & number of local leader	<input type="text"/> <input type="text"/> <input type="text"/>	
1.2.2	Name & number of household head	<input type="text"/> <input type="text"/>	
1.2.3	Sex of household head (Male = 1, Female = 2)	<input type="text"/> <input type="text"/>	
1.2.4	Name of respondent	<input type="text"/> <input type="text"/>	
1.2.5	Relationship of Respondent to Household Head		
<p>Relationship to household head codes (Q 1.2.5) Head of Household.....1 Son/Daughter3 Grandson/Granddaughter5 Other (friend, employee, etc)...8 Spouse2 Father/Mother4 Other relative.....6</p>			
2.0 ACTIVITIES OF THE HOUSEHOLD			
2.1	Type of Agriculture Household	<input type="text"/>	
<p>Agriculture household codes(Q2.1) Crops only.....1 Livestock only2 Pastoralist.....3 Crops and Livestock4</p>			
2.2	Rank the following livelihood activities/source of income of the household in order of importance		
S/N	Livelihood/source of income activity.	Rank in order of importance 1=most 7=least	How important are each of these activities expressed in percentage.
	(1)	(2)	(3)
2.2.1	Annual Crop farming	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.2	Permanent crop farming	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.3	Livestock keeping/herding	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.4	Off Farm Income	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.5	Remittances	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.6	Fishing/hunting and gathering	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.7	Tree/forest resources (eg honey, firewood, timber,etc)	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
			<input type="text"/> <input type="text"/> <input type="text"/> %

Definition and working page for page 1**General Definitions****Small holder hh/small scale farm:**

Should have between 25sq metres and 20 Hectares under production, and/or between 1 and 50 head of Cattle, and/or between 5 and 100 head of Sheep/Goats/Pigs, and/or between 50 and 1000 chickens/turkeys/ducks/rabbits.

Household: A group of people who occupy the whole or part of one or more housing units and makes joint provisions for food and/or other essentials for living.

Household Head: A person who is acknowledged by all other members of the household either by virtue of his age or standing in the household as the head. He/she should be a permanent resident of the house and he/she is the main person responsible for making decisions.

Agricultural Holding: This is an economic unit of agricultural production under single management. It consists of all livestock kept and all land used for agricultural production without regard to title. For the purpose of this survey, the agricultural holdings are restricted to those which meet one of the following conditions:

- Having or operated at least 25 sq meter of arable land
- Own or keep at least one head of cattle or five goats/sheep/pigs or fifty chicken/ducks/turkeys during the agricultural year 2002/03 (October 2002 to September 2003) .

Question Specific Definitions:**Type of Agriculture Holdings Codes (Q2.1):**

- **Crops only:** A holding is referred to be a crops only holding if it has cultivated a piece of land equal or exceeding 25 sq Meter. This also applies to all households owning or have kept livestock whose number does not qualify such household to be an agricultural holding (No cattle, less than 5 goats/sheep/pigs, less than 50 chickens/turkeys/ducks/rabbits)

- **Livestock only:** A holding is referred to be a Livestock only holding if it has exercised Livestock husbandry only during the agricultural year. The livestock can be herded in search for areas of pasture, but the core household unit always remains in the same place and the herder is rarely away from this place for long periods at a time.

- **Livestock pastoralism:** This refers to a household which practices livestock production as its major income generating activity and a means of subsistence, but moves from one place to another searching for water and pasture for the livestock. This movement usually involves long distances and in many cases the whole household unit moves with the livestock and they have no permanent place of residence.

For both livestock only and pastoralism , the number of livestock has to be at least 1 head of cattle, 5 goats/sheep/pigs or 50 chickens/turkeys/ ducks/rabbits. This also applies to all households owning or have cultivated a piece of land less than 25 sq meter, which does not qualify such household be an agricultural holding.

- **Both crops and livestock:** A holding is referred to be a both crops and livestock if it has cultivated a piece of land equal or exceeding 25 sq meter and if such households is owning or have kept livestock whose number qualify such household be an agricultural holding.

Important livelihood activities/source of income (Q 2.2):

- **Crop farming:** This refers to a household where crop production is its major means of subsistence and income generation.

- **Livestock farming/herding/pastoralism:** This refers to a household where livestock farming/herding is its major means of subsistence & income generation.

- **Off Farm Income** This refers to cash generated from activities other than from the households holding. This can be from permanent employment (eg government/other), temporary employment/labouring and includes cash generated from working on other farmers farms.

- **Remittances:** Assistance from family members who are not currently part of the household, or from a relative or family friend. This assistance is usually in the form of cash but it can also be in-kind (eg food, clothes, building material, farm tools, etc). The money is a gift and is not paid back.

- **Fishing/hunting and gathering** The use of non farmed resources for food eg fishing, hunting wildlife and gathering mushrooms, berries, wild honey roots from uncultivated land.

Procedures for Questions:**Q 2.1 Type of agriculture household/holding**

1. Using the options under the question classify the type of agriculture hh/holding

Note: If the hh had 1 acre of crops and raised 40 chickens during 2002/03 it is classified as '**Crops only**' as the number of chickens do not qualify the hh as keeping livestock.

Q 2.2 Important hh livelihood activities /source of income

1. Read the list in column 1 to the respondent and ask him to rank them in order of importance during the reference year.

2. In column 2 Indicate the importance of each activity by placing '1' against the most important, '2' against the second most important, etc until you reach '7' the least important activity/source of income.

Note: You must attempt to fill in all boxes. Most households will carry out these activities to a greater or lesser degree. You will normally have to probe to get remittances.

If the hh did not undertake an activity during the 2002/2003 agriculture year then mark the appropriate box in column 2 with an 'X'.

3. For each activity/source of income assign a percentage. The enumerator should assist the respondent in assigning the percentage based on the information provided by the farmer.

4. After completing column 3 make sure the percentages add up to 100.

Note: It is not essential to be 100% accurate. This question is just to give the relative importance of the different items in general terms

3.0 HOUSEHOLD INFORMATION

3.1 Give details of personal **particulars** of all household members beginning with the head of the household

S/N	Names of household members	Relation-ship to head	Sex M=1 F=2	Age (if age is above 99 years then write 99)	Survival of Parents		Read & Write	Edu- ca- tion Status	Education Level reached	Invol- vement in farming	Main activity (for aged 5 & above)	Off-farm Income Yes=1 No=2
					Mo- ther	Fa- ther						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
3.1.1	<input checked="" type="checkbox"/> 1	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>
3.1.16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>

Relation to head (Col 2)

Head of household1

Spouse2

Son/daughter3

Father/Mother4

Grandson/granddaughter .5

Other Relative6

Others8

Education Status (Col 8)

Attending School1

Completed2

Never attended School3

Involvement in farming activities (Col 10)

Works full time on farm ...1

Works part-time on farm 2

Rarely works on farm3

Never works on farm.....4

Main activity (Col 11)

Crop Farming01

Livestock Keeping/Herding..02

Livestock Pastoralism.....03

Fishing04

Paid employment:

- Government/parastatal05
- Private- NGO/mission/etc .06

Self employed (non farming)

- with employees07
- without employees08

Unpaid family helper (non agriculture)09

Not working & available.....10

Not working & unavailable...11

Housemaker/housewife12

Student13

Unable to work /too old/
Retired/sick/disabled).....14

Other98

Survival of Parents (Col 5 & 6)

Yes1

No2

Don't know3

Read & Write (Col 7)

Swahili1

English2

Swahili & English3

Any other language4

Don't Read/ Write5

Education Level Reached (Col 9)

Primary Education

Not of school ageNA

Under Standard One 00

Standard One01

Standard Two02

Standard Three03

Standard Four04

Standard Five05

Standard Six06

Standard Seven07

Standard Eight08

Training after Primary Education09

Pre Form One10

Secondary Education

Form one11

Form two12

Form three13

Form four14

Form five15

Form six16

Training after Secondary Education17

University & other tertiary Education18

Adult Education19

Not applicable99

Definition and working page for page 2

Question Specific Definitions:

Relation to head (Col 2):

- **Household Head:** A person who is acknowledged by all other members of the household either by virtue of their age or standing as the household head.

Read and Write (Col 7):

- **Any other language:** Must be a written language.

For someone who can read and write in Swahili and any other language apart from English, the correct code is 1. For one who can read and write in English and any other language apart from Swahili the correct code is 2. Code 4 should only be used for another language but not English or Swahili

Education Level Reached (Col 9):

Indicate the highest level only. For those still attending school fill in the last year reached before the survey period. For example if a hh member is currently in standard 7 this year his highest grade reached is standard 6

Main Activity (Col 11):

- **Crop farming:** The persons main activity is crop production. This can be annual crops, vegetables, permanent crops or tree farming.

- **Livestock farming/herding:** The persons main activity is livestock farming/herding. The livestock can be herded in search for areas of pasture, but the core household unit always remains in the same place and the herder is rarely away from this place for long periods at a time. This category also includes fish farming but not fishing.

- **Livestock pastoralism:** The persons main activity is in moving livestock from one place to another searching for water and pasture for the livestock. This movement usually involves long distances and in many cases the whole household unit moves with the livestock and they may have no permanent place of residence.

- **Paid employment** - In full time employment earning a cash income

- **Government/Parastatal** - In full time employment for a government Ministry, Department or Board that is controlled by the Government
 - **Private/NGO/Mission/etc** - employed by Non public/government organisation

- **Self employee** - works for own business for cash income

- **With employees** - Works for own business for cash and employs other workers

- **Without employees** - Works for own business for cash but does not employ other workers

- **Not working but available to work** - No productive activity but would like to have one.

- **Not working & nor available for work** - No productive activity and does not want to have one.

- **Unable to work** too old, too young, retired, disabled, etc

- **Off-farm Income (Col 12)** - Income made from activities NOT on the HH's farming activities. This can be any off farm income generation activity and includes working for cash on other peoples farms.

Indicate whether each member was involved in an off farm income generating activity during 2002/03

Overview to section 3.0

Section 3.0 - Preliminary note

1. Make sure that you define the hh properly to ensure that all the members of the hh are included. Make sure you stress that the hh is not just the hh heads direct family and that it includes other people living and eating together with the family.

2. If you notice that his house is large or you see many people around his house and he has only given you small number of hh members enquire further until you are sure that you have captured all the hh members.

Procedures for questions

Section 3.0 - Household Information

1. For each household member complete columns 1, 2 & 3.

2. After completing columns 1, 2 & 3 for each household member go back to the first household member and complete the remaining columns for that member.

3. Repeat step 2 for the rest of the household members

IMPORTANT NOTE:

Cross check responses in columns 11 and 12 with section 2 especially in relation to:

off-farm income - if a hh member was involved in off farm income then there should be a response in question 2.2.4 and vice versa.

4.0 LAND ACCESS/OWNERSHIP/TENURE				
4.1		Details of area "owned" by the household in the 2002/03 agricultural year. Give area reported by the respondent in "acres".		
		Area in Acres		
4.1.1	Area Leased /Certificate of ownership	□ □ □ □	□ □	4.2 Was all land available to the hh used during 2002/03 (Yes=1, No=2) <input type="checkbox"/>
4.1.2	Area owned under Customary Law	□ □ □ □	□ □	
4.1.3	Area Bought from others	□ □ □ □	□ □	
4.1.4	Area Rented from others	□ □ □ □	□ □	4.3 Do you consider that you have sufficient land for the hh (Yes=1, No=2) <input type="checkbox"/>
4.1.5	Area Borrowed from others	□ □ □ □	□ □	
4.1.6	Area Share -cropped from others	□ □ □ □	□ □	
4.1.7	Area under Other forms of tenure	□ □ □ □	□ □	4.4 Do any female members of the hh own or have customary right to land (Yes=1, No=2) <input type="checkbox"/>
Total area		□ □ □ □	□ □	

5.0 LAND USE				
5.1		Area operated by household under different forms of land use during 2002/03 agriculture year. Give area reported by the respondent in "acres".		
		Area in Acres		Calculation area
5.1.1	Area under Temporary Mono-crops	□ □ □ □	□ □	
5.1.2	Area under Temporary Mixed crops (eg Maize & beans)	□ □ □ □	□ □	
5.1.3	Area under Permanent Mono-crops	□ □ □ □	□ □	
5.1.4	Area under Permanent Mixed crops (eg bananas, coffee & trees)	□ □ □ □	□ □	
5.1.5	Area under Permanent/temporary mix (eg bananas & maize)	□ □ □ □	□ □	
5.1.6	Area under Pasture	□ □ □ □	□ □	
5.1.7	Area under Fallow	□ □ □ □	□ □	
5.1.8	Area under Natural Bush	□ □ □ □	□ □	
5.1.9	Area under Planted Trees	□ □ □ □	□ □	
5.1.10	Area Rented to others	□ □ □ □	□ □	
5.1.11	Area Unusable	□ □ □ □	□ □	
5.1.12	Area of Uncultivated Usable land (excluding fallow)	□ □ □ □	□ □	
Total area		□ □ □ □	□ □	

6.0 ACCESS AND USE OF RESOURCES

6.1 In the following table indicate the distance to the different fields used by the household

S/N	Field Number	Distance (in kilometres) from field to:			Distance codes
		Homestead	Nearest road	Nearest Market	
6.1.1	1	□ □ □ □	□ □ □ □	□ □ □ □	less than 100m1 between 2 and 3km6 between 100 and 300m .2 between 3 and 5km7 between 300 and 500m .3 between 5 and 10 km ..8 between 500 and 1km....4 Over 10 km9 between 1 and 2km5
6.1.2	2	□ □ □ □	□ □ □ □	□ □ □ □	
6.1.3	3	□ □ □ □	□ □ □ □	□ □ □ □	

6.2 In the following table indicate the distance and use of the following communal resources

S/N	Communal Resource	Distance to resource (km)		Main hh use	Instructions for distance to resource (Col 2 and 3): If under 1km, write 0 If above 1km round to whole numbers eg 1.5km= 2km, 1.25km= 1km Main hh use (Col 4) Home or farm Consumption/utilisation.....1 Sold to Neighbours.....2 Sold to trader on the farm.....3 Sold to village market4 Sold to local wholesale market.....5 Sold to major wholesale market6 Not used by household.....7 Not available8
		dry season	wet season		
	(1)	(2)	(3)	(4)	
6.2.1	Water for humans	□ □ □ □	□ □ □ □	□ □ □ □	
6.2.2	Water for livestock	□ □ □ □	□ □ □ □	□ □ □ □	
6.2.3	Communal Grazing	□ □ □ □	□ □ □ □	□ □ □ □	
6.2.4	Communal Firewood	□ □ □ □	□ □ □ □	□ □ □ □	
6.2.5	Wood for Charcoal	□ □ □ □	□ □ □ □	□ □ □ □	
6.2.6	Building poles	□ □ □ □	□ □ □ □	□ □ □ □	
6.2.7	Forest for bees (honey)	□ □ □ □	□ □ □ □	□ □ □ □	
6.2.8	Hunting (animal products)	□ □ □ □	□ □ □ □	□ □ □ □	
6.2.9	Fishing (Fish)	□ □ □ □	□ □ □ □	□ □ □ □	

Definition and working page for page 3

Question Specific Definitions

Section 4.1 - Land Access/Ownership

Lease/Certificate of Ownership Area under lease/certificate of ownership refers to the area for which the household possesses a government issued leasehold title or certificate of ownership. The land will normally be officially surveyed and boundaries marked. This includes leased land bought from others where the lease/certificate of ownership has been transferred.

Customary Law: This refers to the land which the hh does not have an official government title to but its right of use is granted by the traditional leaders. This user-right agreement does not have to be granted directly by the village leaders as right of access may be passed on through heredity.

Bought: This refers to the area of customary land that has been bought from others. This land does not have an official title and therefore is not leasehold.

Rented from others: Land rented from others for Cash or for a fixed amount in crop produce (eg fixed number of bags at harvest).

Borrowed: Use granted by land owner free of charge. Land owner can either be a lease holder or has right of access through customary law.

Share Cropping: where the hh is permitted to use land which is then paid for from a percentage of the harvested crop.

Section 5.0 Land Use

- **Temporary crops:** are sown and harvested during the same agricultural year

- **Permanent crops:** are sown or planted once and then, they occupy the land for some years and need not to be replanted after each annual harvest. Permanent crops are mainly trees (e.g., apples) but also bushes and shrubs (e.g., berries), palms (e.g., dates), vines (e.g., grapes), herbaceous stems (e.g., bananas) and stemless plants (e.g., pineapples).

- **Mixed Crops:** This is a mixture of two or more crops planted together and mixed in the same plot/field. The two crops can either be randomly planted together or they can be planted in a particular pattern eg intercropping (1 row of maize and 1 row of beans). A field that has been divided into plots for different crops is not mixed. This is further subdivided into:

Permanent Mixed -two or more permanent crops grown together,
Permanent/Temporary Mix - permanent crop and annual crop together,
Temporary Mixed - two or more temporary, annual crops grown together.

- **Pasture Land:** This is an area of owned/allocated land which is set aside for livestock grazing. It can be improved pasture where the farmer has planted grass, applied fertilizer or applied other production increasing technologies to improve the grazing. Or it can be rough pasture.

- **Fallow:** This is the area of land that is normally used for crop production, but is not used for crop production during a year or a number of years. This is normally to allow for self generation of fertility/soil structure and is often an integral part of the crop rotation system.

- **Natural Bush:** Land which is considered productive but is not under cultivation or used extensively for livestock production and has naturally growing shrubs and trees.

- **Planted trees:** Land which is used for planting trees for poles or timber

- **Unusable:** Land that is known to be non-productive for agriculture purposes

Uncultivated Usable: This is land that was not used for reasons other than fallow. The reasons could be lack of inputs/money/rainfall/etc

Distance to fields (Q6.1):

-**fields** A field is a contiguous piece of land holding which the farmer considers as a single entity. The field may be divided into plots for growing different crops. A holding may consist of one or more fields in different localities.

Use of Communal Resources (Q6.2):

-**Communal resources** - refers to the place on which all individual households can have access to. It is not individually owned or controlled by one hh.

NOTE: The listed resources refers to communal resources and not those individually owned or part shared. The resource has to be freely accessible to the whole village

Overview to section 4

Section 4.0 - Preliminary note Land Access/ Ownership

Access/Ownership refers to the area utilized by the members of the household. This does not include communal land where the resources are shared between households. It does include official communal land that the hh has sole access to eg a plot for crop farming in the communal area.

Procedures for Questions

Section 4.0 - Land Ownership

1. Ask the respondent if he knows the total area of land the household has sole access to. If he knows make a note in the calculation space
2. Ask the respondent the area of the different land ownership categories the household has sole access to (Q4.1.1 to 4.1.7) and record in the appropriate spaces.
3. Add up the area of the different categories of land and compare it with the total area obtained in step 1 (if the respondent provided the information).
4. If the total area is different find out which one is correct and make amendments where appropriate.

Section 5.0 - Land Use

1. Ask the respondent the area of the different landuse categories the household has sole access to (Q5.1.1 to 5.1.12) and record in the appropriate spaces.
2. Add up the area of the different categories of land and compare it with the total area obtained in section 4.0. The total area should be the same.
3. If the total area is different find out which one is correct and make amendments where appropriate.

Section 6.2 Communal resources

Note: the code "Not available" means that the resource does not exist. The code "Not Used" means that the resource does exist but is not used by the hh.

7.0 ANNUAL CROP AND VEGETABLE PRODUCTION - SHORT RAINY SEASON

7.1.1 Did the hh **plant** any crops during the **Short Rainy** season? (Yes = 1, No=2)

If the response is **'NO'** give main reason Then go to section 7.2

- Main Reason (Above)** No rains.....1 Rains came too late2 Does not plant annual crops3
 No money 4 Don't get Vuli season ..5 Illness/social problems6
 Has irrigation & does not follow season (give annual production in Masika)7

7.1.2 For each crop planted during 2002/03 **Short Rainy** season provide the following information

Crop Name	Crop Code	Land Clearing	Soil preparation	Planting		Inputs						Harvesting & Storage				Marketing			
				Planned area (acres)	Actual Planted area (acres)	% improved seed	Irrigation use	Fertiliser use	Herbicide use	Fungicide use	Pesticide use	How harvested	How threshed	Area Harvested (acres)	main product code	Quantity harvested (Kgs)	Quantity Stored (kgs)	Quantity sold (kgs)	Mostly sold to
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Total Planned/Planted						Total area harvested													

7.1.3 Main reason for difference between **Area Planned** and **Area Planted**

- Land Clearing (Col 3)**
 Mostly bush clearance ...1
 Mostly hand slashing2
 Mostly tractor slashing ...3
 Mostly burning4
 No land clearing5

- Soil preparation Method (Col 4)**
 Mostly tractor ploughing .1
 Mostly Oxen ploughing ..2
 Mostly Hand cultivation ..3

- Fertiliser codes (Col 9)**
 Mostly Farm Yard Manure 1
 Mostly Compost2
 Mostly Inorganic fertiliser .3
 No fertiliser applied4

- Agrochemical use codes (Col 10,11 &12)**
 Used on all crop1
 Used on 3/4 of crop2
 Used on 1/2 of crop3
 Used on 1/4 of crop4
 Used on less than 1/45
 Not used6

- Threshed/harvested (Col13 & 14)**
 By hand1
 By draft animal2
 By human powered tool3
 By engine driven machine...4
 Not applicable9

- Main product (Col 16)**
 Dry Grain1
 Green cob/green pod2
 Green leaves & Stem3
 Straw, dry stems etc4
 Root, tuber, etc5
 Flower eg pyrethrum6
 Fruit/bunch7
 Other8
 Not harvested yet9

7.1.4 Main reason for difference between **Area Planted** and **Area Harvested**

- Reason for difference between area planned and planted (Q7.1.3)**
 Drought1
 Floods2
 Access to land preparation tools (Draft animal/tractors).3
 Credit4
 Access to seeds/planting material5
 Access to other inputs6
 Other8
 Not applicable9

- Reason for difference between area planted and harvested (Q7.1.4)**
 Drought1
 Rain/flood damage2
 Fire damage3
 Pest damage4
 Animal damage5
 Theft6
 Illness/social problems7
 Other8
 Not applicable9

Definitions and working page for page 4

Working table for the calculation of area occupied by annual crop in a mixture

Crop mixture 1	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
(a)	(b)	(c)	(d)	(e)	(f)
Permanent crop 1			0.00		0 .
Permanent crop 2			0.00		0 .
Permanent crop 3			0.00		0 .
Permanent crop 4			0.00		0 .
Total Area of permanent crops in mix					0 .
REMAINING AREA UNDER TEMPORARY CROPS					
				crop%	crop area
Temporary/permanent crop name 1					
Temporary/permanent crop name 2					
Temporary/permanent crop name 3					
Total area check			Crop total check		

Crop mixture 2	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
(a)	(b)	(c)	(d)	(e)	(f)
Permanent crop 1			0.00		0 .
Permanent crop 2			0.00		0 .
Permanent crop 3			0.00		0 .
Permanent crop 4			0.00		0 .
Total Area of permanent crops in mix					0 .
REMAINING AREA UNDER TEMPORARY CROPS					
				crop%	crop area
Temporary/permanent crop name 1					
Temporary/permanent crop name 2					
Temporary/permanent crop name 3					
Total area check			Crop total check		

Land Clearing: Refers to removing trees/bush/grass prior to ploughing
Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc)
Planned Area: Area in Acres the household planned to plant before the season started
Actual Planted Area: The area in Acres the household was able to plant.
Area Harvested: The area in Acres that produced a harvest. This is the same as the area planted minus the area that was destroyed by major flood/pest/ animal/etc damage.

Temporary/Annual Crop: Crops which are planted and harvested within a period of 12 months after which time the plants die. Most annual crops are planted and harvested on a seasonal basis.

Cash Crop Codes:

Code Crop	11 Maize
50 Cotton	12 Paddy
51 Tobacco	13 Sorghum
53 Pyrethrum	14 Bulrush Millet
62 Jute	15 Finger Millet
19 Seaweed	16 Wheat
	17 Barley
	22 Sweet Potatos
	23 Irish potatoes
	24 Yams
	25 Cocoyams
	26 Onions
	27 Ginger

Crop Codes (Cereals /tubers/roots):

Code Crop	11 Maize
12 Paddy	13 Sorghum
14 Bulrush Millet	15 Finger Millet
16 Wheat	17 Barley
22 Sweet Potatos	23 Irish potatoes
24 Yams	25 Cocoyams
26 Onions	27 Ginger

Vegetable Codes:

Co Crop	-de
86 Cabbage	87 Tomatoes
88 Spinach	89 Carrot
90 Chillies	91 Amaranths
92 Pumpkins	93 Cucumber
94 Egg Plant	95 Water Mellon
96 Cauliflower	

Crop Codes Legumes Oil & fruit:

Code Crop	31 Beans
32 Cowpeas	33 Green gram
35 Chick peas	36 Bambara nuts
37 Field peas	41 Sunflower
42 Simsim	43 Groundnut
47 Soyabeans	48 Caster seed

Instructions for calculating the area of mixed crops in a mixture.

- If the mixed crop is mixed annual only enter the total area of the field in the REMAINING AREA UNDER TEMPORARY CROPS. and goto step 1 of these instructions.
- If the mixed crop is mixed permanent and annual try to get the % occupied by the different crops and calculate the area of annual crops outlined in step 1. Otherwise use the number of trees method to calculate the area of annual crops in the mix, Step C
- Number of trees method to calculate annual crop areas in a permanent-annual crop mix/
 - list each of the permanent crops in column b and enter the ground area per acre for each permanent crop (from instructions for page 6) in column 'd'.
 - obtain the number of permanent trees in the mix from the respondent and enter the number in column 'e'.
 - calculate the area occupied by each crop by multiplying column 'd' with column 'e' and sum these to obtain the total area of permanent crops in the mix.
 - subtract the total area of permanent crops in the mix from the total area of mix and enter the result in the total area under temporary crops.
 - proceed to step 1 to calculate the area under each temporary crop.

- Enter the name of each annual crop in the mix & estimate the percentage of each crop.
- Using the percentages for each crop calculate the area of each crop from the REMAINING AREA UNDER TEMPORARY CROPS.
- After completing this exercise for all fields, sum the area of each crop in the mix plus any monocrops and enter totals in section 7.1 col 6.
- Obtain an estimate of the planned area for each crop and enter it in column 5
- If the area harvested is different to the area planted estimate the harvest area
- Once the quantity harvested is obtained calculate the Yield (Metric tonnes/acre) & compare the figure with the norms given in the crop codes box. If it is excessively different check the area and the amount harvested.

7.2 ANNUAL CROP AND VEGETABLE PRODUCTION - LONG RAINY SEASON

7.2.1 Did the hh plant any crops during the LONG RAINY season? (Yes=1 No=2)

If the response is 'NO' give main reason

Then go to section 7.3

Main Reason (Above) No rains....1 Rains came too late2 Does not plant annual crops3
No money 4 Illness/social problems ..5

7.2.2 For each crop planted during 2002/03 Long Rainy season provide the following information

Crop Name	Crop Code	Land Cleared	Soil preparation	Planting		Inputs						Harvesting & Storage				Marketing			
				Planned area (acres)	Actual Planted area (acres)	% improved seed	Irrigation use	Fertiliser use	Herbicide use	Fungicide use	Pesticide use	How harvested	How threshed	Area Harvested (acres)	main product code	Quantity harvested (Kgs)	Quantity Stored (Kgs)	Quantity sold (kgs)	mostly sold to
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
.....																			
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.....																			
.....																			
.....																			
.....																			
.....																			
Total Planned/Planted						Total area harvested													

7.2.3 Main reason for difference between Area Planned and Area Planted

7.2.4 Main reason for difference between Area Planted and Area Harvested

<p><u>Land Clearing (Col 3)</u> Mostly bush clearance ...1 Mostly hand slashing2 Mostly tractor slashing ...3 Mostly burning4 No land clearing5</p>	<p><u>Improved seed Use (Col 7)</u> all Improved1 approx 3/4 improved.....2 approx 1/2 improved.....3 approx 1/4 improved....4 less than 1/4 improved ..5 No improved seed used.6</p>	<p><u>Fertiliser codes (Col 9)</u> Mostly Farm Yard Manure 1 Mostly Compost2 Mostly Inorganic fertiliser ..3 No fertiliser applied4</p>	<p><u>Threshed/harvested (Col13 & 14)</u> By hand1 By draft animal2 By human powered tool.....3 By engine driven machine...4 Not applicable9</p>	<p><u>Mostly sold to (Col 20)</u> Neighbour.....01 Local market/trade store02 Secondary Market..03 Tertiary Market04 Marketing Coop ...05 Farmer Association06 Largescale farm ...07 Trader at Farm08 Contract Partner ...09 Did not sell10 Other98</p>	<p><u>Reason for difference between area planned and planted (Q7.2.3)</u> Drought1 Floods2 Access to land preparation tools (Draft animal/tractors)..3 Credit4 Access to seeds/planting material.....5 Access to other inputs6 Other8 Not applicable9</p>	<p><u>Reason for difference between area planted and harvested (Q7.2.4)</u> Drought1 Rain/flood damage2 Fire damage3 Pest damage4 Animal damage5 Theft6 Illness/social problems7 Other8 Not applicable.....9</p>
<p><u>Soil preparation Method (Col 4)</u> Mostly tractor ploughing .1 Mostly Oxen ploughing ..2 Mostly Hand cultivation ...3</p>	<p><u>Irrigation Use (Col 8)</u> Used on all crop1 Used on 3/4 crop2 Used on 1/2 crop3 Used on 1/4 of crop.....4 Used on less than 1/4 ...5 Not used6</p>	<p><u>Agrochemical use codes (Col 10,11 &12)</u> Used on all crop1 Used on 3/4 of crop2 Used on half of crop3 Used on 1/4 of crop4 Used on less than 1/45 Not used6</p>	<p><u>Main product (Col 16)</u> Dry Grain1 Green cob/green pod.....2 Green leaves & Stem.....3 Straw, dry stems etc4 Root, tuber, etc5 Flower eg pyrethrum6 Fruit/bunch.....7 Others8 Not harvested yet9</p>			

Definitions and working page for page 5					
Working table for the calculation of area occupied by annual crop in a mixture					
Crop mixture 1	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
(a)	(b)	(c)	(d)	(e)	(f)
Permanent crop 1			0.00		0
Permanent crop 2			0.00		0
Permanent crop 3			0.00		0
Permanent crop 4			0.00		0
Total Area of permanent crops in mix					0
REMAINING AREA UNDER TEMPORARY CROPS					
				Temp crop%	Temp crop area
Permanent/Temporary crop name 1					
Permanent/Temporary crop name 2					
Permanent/Temporary crop name 3					
Total area check			Temporary crop total check		

Working table for the calculation of area occupied by annual crop in a mixture					
Crop mixture 2	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
(a)	(b)	(c)	(d)	(e)	(f)
Permanent crop 1			0.00		0
Permanent crop 2			0.00		0
Permanent crop 3			0.00		0
Permanent crop 4			0.00		0
Total Area of permanent crops in mix					0
REMAINING AREA UNDER TEMPORARY CROPS					
				Temp crop%	Temp crop area
Temporary/permanent crop name 1					
Temporary/permanent crop name 2					
Temporary/permanent crop name 3					
Total area check			Temporary crop total check		

Land Clearing: Refers to removing trees/bush/grass prior to ploughing
Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc)
Planned Area: Area in **Acres** the household planned to plant before the season started
Actual Planted Area: The area in **Acres** the household was able to plant.
Area Harvested: The area in **Acres** that the household got most of its production from. This is the same as the area planted minus the area that was destroyed by major flood/pest/ animal/etc damage

<p>Temporary/Annual Crop: Crops which are planted and harvested within a period of 12 months after which time the plants die. Most annual crops are planted and harvested on a seasonal basis.</p> <p>Cash Crop Codes: Code Crop 50 Cotton 51 Tobacco 53 Pyrethrum 62 Jute 19 Seaweed</p>	Crop Codes (Cereals /tubers/roots):	Vegetable Codes:	Crop Codes Legumes Oil & fruit:
	Code Crop	Code Crop	Code Crop
	11 Maize 12 Paddy 13 Sorghum 14 Bulrush Millet 15 Finger Millet 16 Wheat 17 Barley 22 Sweet Potatos 23 Irish potatoes 24 Yams 25 Cocoyams 26 Onions 27 Ginger	27 Ginger 86 Cabbage 87 Tomatoes 88 Spinach 89 Carrot 90 Chillies 91 Amaranths 92 Pumpkins 93 Cucumber 94 Egg Plant 95 Water Mellon 96 Cauliflower 20 Garlic	31 Beans 32 Cowpeas 33 Green gram 35 Chick peas 36 Bambara nuts 37 Field peas 41 Sunflower 42 Simsim 43 Groundnut 47 Soyabeans 48 Caster seed

Instructions for calculating the area of mixed crops in a mixture.

A. If the mixed crop is mixed annual only enter the total area of the field in the REMAINING AREA UNDER TEMPORARY CROPS. and goto step 1 of these instructions.

B. If the mixed crop is mixed permanent and annual try to get the % occupied by the different crops and calculate the area of annual crops outlined in step 1. Otherwise use the number of trees method to calculate the area of annual crops in the mix (Step C).

C. Number of trees method to calculate annual crop areas in a permanent-annual crop mix

- list each of the permanent crops in column b and enter the ground area per acre for each permanent crop (from instructions for page 6) in column 'd'.
- obtain the number of permanent trees in the mix from the respondent and enter the number in column 'e'.
- calculate the area occupied by each crop by multiplying column 'd' with column 'e' and sum these to obtain the total area of permanent crops in the mix.
- subtract the total area of permanent crops in the mix from the total area of mix and enter the result in the total area under temporary crops.
- proceed to step 1 to calculate the area under each temporary crop.

- Enter the name of each annual crop in the mix & estimate the percentage of each crop.
- Using the percentages for each crop calculate the area of each crop from the REMAINING AREA UNDER TEMPORARY CROPS.
- After completing this exercise for all fields, sum the area of each crop in the mix plus any monocrops and enter totals in section 7.1 col 6.
- Obtain an estimate of the planned area for each crop and enter it in column 5
- If the area harvested is different to the area planted estimate the harvest area
- Once the quantity harvested is obtained calculate the Yield (Metric tonnes/acre) & compare the figure with the norms given in the crop codes box. If it is excessively different check the area and the amount harvested.

7.3 PERMANENT/PERENNIAL CROPS AND FRUIT TREE PRODUCTION

7.3.1 Does your household have any permanent/perennial crops or fruit trees (Yes=1, No=2) 1

7.3.2 For each of the permanent crops and fruit trees owned by the household provide the following information

		Size of production unit			Inputs					Harvesting & Storage					Marketing		
Perm -anent Crop Name	Perman -ent crop/ fruit tree crop Code	MONOCROP	MIXED CROP		Irrig -at -ion use (6)	Fert -ilis -er use (7)	Herb -ic -ide use (8)	Fun -gic -ide use (9)	Pest -ici -de use (10)	Area Harvested (acres) (11)	Number of mature plants (12)	main prod -uct code (13)	Quantity harvested (kgs) (14)	If no harvest give re -ason (15)	Quantity Stored (Kgs) (16)	Quantity sold (kgs) (17)	mostly sold to (18)
		Area of Plants/ trees/Bushes in MONO CROP (acres) (3)	Area covered by Permanent Crop in a MIXED CROP (acre) (4)	Number of permanent Plants/trees in a MIXED CROP (5)													
.....																	
.....																	
.....																	
.....																	
.....																	
.....																	
.....																	
.....																	
.....																	

<p><u>Irrigation Use (Col 6)</u> Used on all crop1 Used on most crop2 Used on half crop3 Used on small amount of crop.4 Not used on crop5</p>	<p><u>Fertiliser codes (Col 7)</u> Mostly Farm Yard Manure.....1 Mostly Compost2 Mostly Inorganic fertiliser3 No fertiliser applied4</p>	<p><u>Agrochemical use codes (Col 8, 9 & 10)</u> Used on all crop1 Used on 3/4 of crop2 Used on 1/2. of crop3 Used on 1/4 of crop4 less than 1/4 of crop5 Not used6</p>	<p><u>Main product (Col 13)</u> Dry Grain.....1 Green cob/green pod..2 Green leaves & Stem..3 Straw, dry stems etc ...4 Root, tuber, etc5 Flower6 Fruit/bunch.....7 Other8 Not harvested yet9</p>	<p><u>Main Reason for no harvest(Col 15)</u> Crop not harvested yet1 Drought2 Rain/flood damage3 Fire damage4 Pest damage5 Animal damage6 Theft7 Other8 Not applicable9</p>	<p><u>Mostly sold to (Col 18)</u> Neighbour.....01 Local market/trade store....02 Secondary Market03 Tertiary Market04 Marketing Coop05 Farmer Association06 Largescale farm07 Trader at farm08 Contract Partner09 Did not sell10 Other98</p>
---	---	--	--	---	---

Definitions and working page for page 6**Permanent Crop:**

Permanent crops: are sown or planted once and then , they occupy the land for some years and need not to be replanted after each annual harvest. Permanent crops are mainly trees (e.g., apples) but also bushes and shrubs (e.g., berries), palms (e.g., dates), vines (e.g., grapes), herbaceous stems (e.g., bananas) and stemless plants (e.g., pineapples).

Total number of plants:

This includes both mature harvestable plants and immature non harvestable plants.

Number of mature plants: This is the number of plants which bared harvest.

Instructions for Permanent crop mono stands and mixtures

- A.** For fields that are **monocrop permanent**, **ONLY** enter the **area of plants in column 3**.
- B.** For fields that are **mixed permanent** calculate the area of each crop based on the % **occupied by each crop method** (NOT using the number of trees method) and **ONLY** enter the area in **column 4**
- C.** For fields that are **mixed permanent/annual** either:
- **ONLY** enter the **area in column 4** if the area of the permanent crop was based on the % **occupied by each crop method**
- OR**
- **ONLY** enter the **number of trees in column 5** if the number of permanent crop plants was provided

Permanent crops (oils):

Code	Crop	Ground area/plant
44	Palm Oil	0.00049
45	Coconut	0.00037
46	Cashewnut	0.00062

Permanent (Cash crops)

Code	Crop	Ground area/plant
53	Sisal	0.00012
54	Coffee	0.00049
55	Tea	0.00037
56	Cocoa	0.00049
57	Rubber	0.00099
58	Wattle	0.00099
59	Kapok	0.00124
60	Sugar Cane	0.00012
61	Cardamom	0.00049
63	Tamarin	0.00099
64	Cinamon	0.00124
65	Nutmeg	0.00099
66	Clove	0.00074
18	Black Pepper	0.00037
34	Pigeon pea	0.00025
21	Cassava	0.00019
75	Pineapple	0.00006

Permanent Crops:

Code	Crop	Ground area/plant
70	Passion Fruit	0.00074
71	Banana	0.00037
72	Avocado	0.00099
73	Mango	0.00099
74	Papaw	0.00037
76	Orange	0.00074
77	Grapefruit	0.00074
78	Grapes	0.00012
79	Mandarin	0.00074
80	Guava	0.00074
81	Plums	0.00074
82	Apples	0.00074
83	Pears	0.00074
84	Peaches	0.00074
85	Lime/lemon	0.00074
68	Pomelo	0.00099
69	Jack fruit	0.00074
97	Durian	0.00074
98	Bilimbi	0.00074
99	Rambutan	0.00074
67	Bread fruit	0.00099
38	Malay apple	0.00074
39	Star fruit	0.00074

Working Area/calculation space

7.4 Main use of Secondary Products

7.5 Did you use **Secondary Products** from any of your crops during the 2002/03 year. (Yes=1, No=2)
 If the response is 'NO' go to section 8.0

7.6 List the **main crops** with **secondary products** and provide the following details:

S/N	Crop name	Crop Code	Secondary product	Prod code	Used for	Unit	Total no of Units	No of units sold	Total value of sold units (Tsh.)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7.6.1									
7.6.2									
7.6.3									
7.6.4									
7.6.5									
7.6.6									

Main product (Col 4)

Green leaves & Stem...1 Flower ...4
 Straw, dry stems etc ...2 Fruit ...5
 Root, tuber, etc ...3 Other ...8

Mainly used for (Col 5)

Feeding to livestock ...1 Consumed by hh ...4
 Building material ...2 Sold ...5
 Fuel for cooking ...3 Did not use ...6

Unit (Col 6)

Loose Bundle/bunch ...1 kg ...5
 Compressed bunch/Bail ...2 Stems ...6
 Tin ...3 Sack ...7
 Bucket ...4 Other ...8

8.0 AGROPROCESSING AND BY-PRODUCTS

8.1 Did the household **process** any of the products harvested on the farm during 2002/03 (Yes=1, No=2)
 If the response is 'NO' go to section 9.0

8.2 List the **main crops processed** and provide the following details:

S/N	Crop name	Crop Code	Proc-ess-ed	Main Prod-uct code	Used for	Unit	Quantity of main product	Quantity Sold	Where sold	By-Prod-uct code	Used for	Unit	Quantity of by-product	Quantity Sold
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
8.2.1														
8.2.2														
8.2.3														
8.2.4														
8.2.5														
8.2.6														

Processed (Col 3)

On farm by hand ...1
 On farm by machine ...2
 By neighbours machine ...3
 By farmers association ...4
 By Cooperative union ...5
 By trader ...6
 On Large scale farm ...7
 By factory ...9
 Other ...8

Main product code (Col 4)

Flour/meal ...1
 Grain ...2
 Oil ...3
 Juice ...4
 Fiber ...5
 Pulp ...6
 Sheet ...7
 Other ...8

Used for (Col 5 & 11)

Household/human consumption ...1
 Fuel for cooking ...2
 Sale ...3
 Animal consumption ...4
 Did not use ...5
 Other ...8

Unit (Col 6 & 12)

Loose bundle/bunch ...1
 Compressed bunch/bail ...2
 Tin ...3
 Bucket ...4
 kg ...5
 litre ...6
 Other ...8

Where sold (Col 9)

Neighbour ...1
 Local market/trade store ...2
 Secondary Market ...3
 Marketing Coop ...4
 Farmer Association ...5
 Largescale farm ...6
 Trader at farm ...7
 Did not sell ...9
 Other ...8

By-product code (Col 10)

Bran ...01
 Cake ...02
 Husk ...03
 Juice ...04
 Fiber ...05
 Pulp ...06
 Oil ...07
 Shell ...08
 Other ...98

Definition and working page for page 7					
Temporary/annual crop codes for section 7.4 col 2					General Definition for Section 7.4
Crop Code	Crop Name	Secondary Product Question 7.4	Agroprocessing & bi-products		
			Main Products (Section 8.0)	Bi-product (Sect 8.0)	
			1	2	
11	Maize	Stems/straw	Flour	Bran	
12	Paddy	Stems/straw	polished rice grain	husk	
13	Sorghum	Stems/straw	flour		
14	Bulrush Millet	Stems/straw	flour		
15	Finger Millet	Stems/straw	flour		
16	Wheat	Stems/straw	flour	Bran	
17	Barley	Stems/straw	flour	Bran	
21	Cassava	Leaves/stems	flour		
22	Sweet Potatoes	Leaves			
23	Irish potatoes				
24	Yams				
25	Cocoyams				
26	Onions				
27	Ginger				
31	Beans	straw/stems			
32	Cowpeas	straw			
33	Green gram	straw			
34	Pigeon peas	stems			
35	Chick peas	straw			
36	Bambara nuts	straw/stems	oil	cake	
41	Sunflower	Stems	oil	Cake	
42	Simsim	straw	oil	Cake	
43	Groundnut	straw	oil	Cake	
47	Soya beans	straw	oil	Cake	
48	Caster seed	straw	oil	Cake	
75	Pineapple		Juice		
50	Cotton	straw	fibre/seed	oil	cake
51	Tobacco				
53	Pyrethrum	straw	insecticide		
62	Jute		fibre		
86	Cabbage				
87	Tomatoes				
88	Spinach				
89	Carrot				
90	Chillies		dried powder		
91	Amaranths				
92	Pumpkins	leaves			
93	Cucumber				
94	Egg Plant				
95	Water Mellon				
96	Cauliflower				
44	Oil Palm	leaves	oil outer	oil inner	cake
45	Coconut	leaves/husk	milk		
46	Cashewnut	Fruit	fruit juice	shell liquid	
52	Sisal	stems	fibre	oil	
54	Coffee	stems	beans	husks	
55	Tea	stems			
56	Cocoa	stems	cocoa	cocoa butter	
57	Rubber	stems			
58	Wattle	stems			
59	Kapok	stems			
60	Sugar Cane		sugar/juice	molasses	ethanol
61	Cardamom				
71	Banana	leaves/stems	juice		
72	Avocado	stems			
73	Mango	stems	Juice		
74	Paw paw		Juice		
76	Orange	stems	Juice		
77	Grape fruit	stems	Juice		
78	Grapes	stems	Juice		
79	Mandarin	stems	Juice		
80	Guava	stems			
81	Plums	stems			
82	Apples	stems			
83	Pears	stems			
84	Pitches	stems			
85	Lime/Lemon	stems	juice		

Secondary Products: Second most important product from a crop. Eg a household may consider the grain from maize as the primary product and the stems/straw as the secondary product.

Note: Secondary products are NOT the same as bi-products. By-products are the result of a processing activity and are dealt with in section 8.0.

Procedures for Questions

Q 7.6 Details of Secondary Products:

1. From the list of crops in Q 7.1.2, 7.2.2 & 7.3.2, ask the respondent if the hh used any secondary products. List the crop names and codes in column 1 and 2 for those crops that the hh used secondary products.
2. For the listed crops give details of the secondary products used.
3. If no units were sold, enter "0" in columns 8 & 9.

Q 8.0 Agroprocessing & bi-products:

1. From the list of crops in Q 7.1.2, 7.2.2 & 7.3.2, ask the respondent if the hh processed any of these crops during the 2002/03 agriculture year. List the crop names and codes in column 1 and 2 for those crops that were processed by the hh.
2. For the listed crops give details of the secondary crops used.
3. If no main product or bi-product was sold enter "0" in columns 8 & 14.
4. If no bi-product was produced enter "0" in columns 10, 11, 12, 13 & 14.

Question Specific Definitions

Agroprocessing and bi-products (Q 8.2)
(Note: Agroprocessing refers to the processing of crops for hh utilisation and for sale)

Main Product (Col 5):

Main Product after processing. Eg for Paddy it may be the polished grain. For Maize it may be flour.

Bi-Product code (Col 11): is the secondary residue after processing, eg for rice it may be the husk. for maize it may be the bran.

Mainly used for (Col 5 & 11):

- **Consumed by household** can mean eaten or utilised in another way (eg by animals) by the hh.

9.0 CROP STORAGE

9.1 Did the household **store** any crops during the 2002/03 agriculture year? (Yes =1, No=2)

If the response is 'NO' go to section 10.0

9.2 For each of the listed crops provide the following details on **storage**

S/N	Crop Name	Stored Y=1 No=2	Current Quantity Stored (kg)	Method of Storage	Normal duration of storage	Main pur- pose	Estimate Storage loss
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
9.2.1	Maize	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.2	Paddy	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.3	Sorghum/Millet	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.4	Beans, peas, etc	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.5	Wheat	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.6	Coffee	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.7	Cashewnut	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.8	Tobacco	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.9	Cotton	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.10	Groundnuts/bambara	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Main method of Storage (Col 4)

In locally made traditional structure..1
In Improved locally made structure .2
In modern store3
In Sacks/open drum.....4
In airtight drum5
Unprotected pile6
Other8

Duration of Storage (Col 5)

Less than 3 months1
Between 3 and 6 months2
Over 6 months3

Main purpose of storage (Col 6)

Food for the household1
To sell for higher price2
seed for planting3
Other8

Storage loss (Col 67)

Little or no loss1
Up to 1/4 loss2
Between 1/4 and 1/2 loss ..3
Over 1/2 loss4

10.0 MARKETING

10.1 Did the household **sell any crops** from the 2002/03 agriculture year? (Yes=1, No=2)

(If the response is 'YES' or 'NO' go to section 10.2)

10.2 For each of the following crops what was the main **marketing problem** faced by the household during 02/03

	Crop	Main problem
	(1)	(2)
10.2.1	Maize	<input type="checkbox"/>
10.2.2	Rice	<input type="checkbox"/>
10.2.3	Sorghum/millet	<input type="checkbox"/>
10.2.4	Wheat	<input type="checkbox"/>
10.2.5	Beans, peas etc	<input type="checkbox"/>
10.2.6	Cassava	<input type="checkbox"/>
10.2.7	Bananas	<input type="checkbox"/>
10.2.8	Coffee	<input type="checkbox"/>

	Crop	Main problem
	(1)	(2)
10.2.9	Vegetables	<input type="checkbox"/>
10.2.10	Tree Fruits	<input type="checkbox"/>
10.2.11	Cashewnut	<input type="checkbox"/>
10.2.12	Cotton	<input type="checkbox"/>
10.2.13	Tobacco	<input type="checkbox"/>
10.2.14	Groundnuts/bamabara	<input type="checkbox"/>
10.2.15	Trees/timber/poles	<input type="checkbox"/>
10.2.16	Fish	<input type="checkbox"/>

10.3 From the list of marketing problems below, for all produce rank the five most important problems

	1	2
10.3.1	Biggest problem	<input type="checkbox"/>
10.3.2	2nd problem	<input type="checkbox"/>
10.3.3	3rd problem	<input type="checkbox"/>
10.3.4	4th problem	<input type="checkbox"/>
10.3.5	5th problem	<input type="checkbox"/>

Market problems (Q10.2 & 10.3 (Col 2))

Open market price too low01 Market too far05 Government Regulatory board problems...09
No transport02 Farmer association problems06 Lack of market Information10
Transport cost too high03 Cooperative Problems07 Other (specify)98
No buyer04 Trade Union problems08 Not Applicable99

10.4 What was the main **reason for not selling** crops during 2002/03 year

Reason for not selling crops (Q10.4)

Price too low1 Farmer association problems4 Government regulatory board problems7
Production insufficient to sell.....2 Cooperative Problems.....5 Other (specify)8
Market too far3 Trade Union problems6 Not Applicable9

Definition and working page for page 8**Question Specific definitions (Section 9.0)****Crop Storage, Section 9****Method of Storage (column 4)**

- **Locally made structure:** The structures that have been inherited from their fore fathers
- **Improved locally made structure:** Traditional structures that have been improved using modern technology.
- **Normal duration of storage:** Often there are stored stocks from different seasons and different years. The normal duration refers to the number of months that the most of the crop is stored for.

Marketing problems Q 10.2 and 10.3 col 2:

- **Farmer Association:** A village or community based group of farmers who have formed an organisation to purchase inputs/sell/store their products in order to achieve a better price for their products.
- **Cooperative Union:** Large inter-village /community organisation set up on a district/regional or national basis for providing inputs, marketing and storing farmers products.
- **Government Regulatory board:** Government control body for setting prices and controlling quality of certain agriculture commodities.

Procedures for Questions**Q 9.2 Details of Crop Storage:**

1. For the crops listed indicate if the household stored any during 2002/03 in column 2.
2. Check that the crops correspond to the crop lists in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments
3. For the listed crops give details of storage.

Q 10.2 Details on Crop Marketing:

1. For each of the crops listed indicate the main problems in marketing during 2002/03 in column 2.
2. Check if the crops correspond to the crop lists list in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments

Q 10.3 Ranking of market problems:

Rank in order of importance the 5 most important marketing problems from the codes in the Market Problems code box.

Working Area/calculation space

11.0 ON-FARM INVESTMENT											
11.1	Does the household practice irrigation (Yes=1, No=2) <input style="float: right;" type="checkbox"/>										
If the response is 'NO' go to section 11.3											
S/N	Source of Irrigation water	Method of obtaining water	Method of application	Irrigatable area (acres)	Area of irrigated land this year (acres)						
	(1)	(2)	(3)	(4)	(5)						
11.1.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>						
Source of irrigation water (Col 1) River1 Borehole5 Lake2 Canal6 Dam3 Tap Water7 Well4				Method of obtaining water (Col 2) Gravity1 motor pump4 Hand bucket2 Other8 Hand pump3			Method of application (Col 3) Flood1 Sprinkler2 water hose3 Bucket/watering can4				
11.2	Does the household have any erosion control/water harvesting facilities on their land (Yes=1, No=2) <input style="float: right;" type="checkbox"/>										
If the response is 'NO' go to section 12.0											
S/N	Type of erosion control/water harvesting structure			Number of structures	Year of construction	Type of erosion control/water harvesting structure			Number of structures	Year of construction	
	(1)			(2)	(3)	(1)			(2)	(3)	
11.2.1	Terraces			<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	Tree belts			<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	
11.2.2	Erosion control bunds			<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	Water harvesting bunds			<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	
11.2.3	Gabions/Sandbags			<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	Drainage ditches			<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	
11.2.4	Vetiver Grass			<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	Dam			<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	
12.0 ACCESS TO FARM INPUTS AND IMPLEMENTS											
12.1 Give details of farm inputs used during the 2002/03 agriculture year											
S/N	Input name	Used Yes=1 No=2	Source	Distance to Source	Source of Finance	Reason for not using	Quality of Input	Plan to use next year Yes =1, No=2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			
12.1.1	Chemical Fertiliser	<input type="checkbox"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>			
12.1.2	Farm Yard Manure	<input type="checkbox"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>			
12.1.3	Compost	<input type="checkbox"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>			
12.1.4	Pesticide/fungicide	<input type="checkbox"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>			
12.1.5	Herbicide	<input type="checkbox"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>			
12.1.6	Improved Seeds	<input type="checkbox"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>			
12.1.7	Other	<input type="checkbox"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>	<input style="width:30px; border: 1px solid black;" type="text"/>			
Source (Col 3) Cooperative01 Local farmers group02 Local market/Trade Store ...03 Secondary Market04 Development project05 Crop buyers06 Large scale farm07 Locally produced by hh08 Neighbour09 Other (specify)98 Not applicable99		Distance to source (Col 4) Less than 1 Km1 Between 1 and 3km2 between 3 and 10 km...3 Between 10 and 20 km ...4 20km and above5 not applicable9			Source of finance (Col 5) Sale of farm products .1 Other income generating activities2 Remittances3 Bank Loan/Credit4 produced on farm5 Other8 Not applicable9			Reason for not using (Col 6) Not available1 Price too high2 No money to buy3 Too much labour required..4 Do not know how to use....5 Input is of no use6 Locally produced by hh7 Other8 Not applicable9		Quality of input (Col 7) Excellent1 Good2 Average3 Poor4 Does not work .5 not applicable...9	

Definition and working page for page 9**Overview of Investment activities (Section 11.0)****Investment activities:**

Investment activities refer to medium to long term farm development structures and projects. This can be Irrigation structures, erosion and water harvesting structures or other permanent or semi-permanent investment made on the land that the household owns.

Question Specific Definitions (Q 11.1)

Source of irrigation Water (Col 1): The main source of water from which water is obtained for irrigation.

Method of obtaining water (Col 2): The mechanism by which the water is extracted from the source,

Application Method (Col 3): How the water is applied on the field.
 - Flood - is the application of water down the slope of the land by means of gravity
 - Sprinkler - is the application of pressurised water through pipes. The water passes through a device which sprays the water onto the crop from above.

Irrigatable Area (Col 4): The area the irrigation system is designed to cover in acres.

Area of irrigated land this year (Col 5): Area of land under irrigation during the 2002/03 agric year. This is the physical area and NOT the cumulative area of 2 or more croppings.

Q 11.1 Irrigation

1. If the hh practices irrigation give details on the main source, main method of obtaining and applying water.
2. Cross check column 8, Q 7.1.2, 7.2.2 & 7.3.2 to check if irrigation was used on any crops.

Question Specific Definitions (Q 11.3)**Erosion control/water harvesting structure (Col 1)**

Terraces: Are structures constructed on the side of a hill to provide a level ground to plant crops. They are often used to trap water for paddy/lowland rice production.

Erosion Control Bunds: These are banks of earth/stones built perpendicular to the slope to slow down water and prevent erosion. They are different to Terraces in that the soil behind the banks are not level.

Gabions: A gabion is a wire mesh box filled with rocks/stones and used to control or prevent gully erosion

Sandbags Used to prevent or control gully erosion

Tree belts/Wind breaks: A band of trees planted perpendicular to the prevailing wind whose main purpose is to slow down wind speed

Water Harvesting bunds: A bank of earth constructed horizontal to the slope of the land to trap water. They are usually banana shaped.

Dam: A bank of earth/material which traps river water to form a catchment of water behind it.

Q 11.3 erosion control/water harvesting

1. Number of structures refers to the number of working/maintained structures and does not include derelict or irreparable structures.
2. Year of construction refers to the year that the structures were first constructed. It is not the year that the structures were last maintained.

Farm Inputs (Q 12.1.1 to 12.1.7)

Farm yard Manure: An organic fertiliser made on farm composed of animal dung.

Compost: An organic fertiliser made on farm from decomposed plant material

Pesticide: Chemical used to either protect the plant from or kill insects, birds, molluscs, mites, etc attacking the plant

Fungicide: is a chemical that is used to protect the plant from or control a fungal disease.

Herbicide: A chemical used to control weeds.

Q 12.0 Farm Inputs

1. Indicate in column 1 whether each of the inputs are used or not.
2. Complete cols 3, 4, 6, and 7 for inputs that are used and place '9' in column 5 (for not applicable).
3. Complete cols 5 & 7 for inputs not used.

NOTE: Cross check column 6, 7, 8 & 9 , Q 7.1.2, 7.2.2 & 7.3.2 to check what inputs were used.

12.2 Give details of farm implements and assets used and owned by the household during 2002/03 agriculture year								
S/N	Equipment/Asset Name	Number		Used in 2002/03 Yes 1, No=2	Source of Equip-ment	Source of Finance	Reason for not using	Plan to use next year Yes=1, No=2
		Owned	rent-ed					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
12.2.1	Hand Hoe	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.2	Hand Powered Sprayer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.3	Oxen	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.4	Ox Plough	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.5	Ox Seed Planter	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.6	Ox Cart	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.7	Tractor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.8	Tractor Plough	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.9	Tractor Harrow	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
12.2.10	Shellers/threshers	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Source of equipment (Col 5)		Source of finance (Col 6)			Reason for not using (Col 7)			
Neighbour.....1 Development project5 Cooperative2 Government6 Local farmers association.....3 Large scale farm7 market/Trade store4 Other (specify)8		Sale of farm products1 Other income generating activities2 Remittances3 Bank Loan4 Credit5 Other8 Not applicable9			Not available1 Price too high2 No money to buy/rent.....3 Too much labour required...4 Equipment/Asset of no use ...5 Other8 Not applicable9			
13.0 USE OF CREDIT FOR AGRICULTURE PURPOSES								
13.1	During the year 2002/03 did any of the hh members borrow money for agriculture (Yes = 1, No = 2) <i>(if the response is 'NO' go to section 13.3)</i>							
13.2	Give details of the credit obtained during the agricultural year 2002/03 <i>(if the credit was provided in kind , for example by the provision of inputs, then estimate the value in 13.2.9)</i>							
	use codes to indicate source	Source "a"		Source "b"		Source "c"		
	Provided to Male = 1, Female 2	<input type="text"/>		<input type="text"/>		<input type="text"/>		
		tick the boxes below to indicate the use of the credit		tick the boxes below to indicate the use of the credit		tick the boxes below to indicate the use of credit		
13.2.1	Labour	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.2	Seeds	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.3	Fertilisers	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.4	Agrochemicals	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.5	Tools/equipment	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.6	Irrigation structures	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.7	Livestock	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.8	Other	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.9	Value of Credit (Tsh.)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.10	Value of repayment (Tsh.)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
13.2.11	Period of repayment (months)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Source of credit (Q 13.2-a, b and c) Family, friend or relative....1 Commercial Bank.....2 Cooperative3 Savings & credit Soc4 Trader/trade store5 Private individual6 Religious Organisation/NGO/Project ...7 Other (Specify).....8								
13.3	If the answer to question 13.1 above is 'NO' what is the reason for not using Credit?							
Reason for not using credit (Q13.3) Not needed ...1 Not available ...2 Did not want to go into debt....3 Interest rate/cost too high.....4 Did not know how to get credit....5 Difficult bureaucratic procedure ...6 Credit granted too late ...7 Other (specify) ...8 Dont know about credit9								

Definition and working page for page 10**Question Specific Definitions (Q 12.2)****Farm Implements (Col 1):**

Hand powered Sprayer: Knapsack or bicycle pump sprayer

Reason for not using (Col 6): Be careful about using "too much labour required" as this code generally refers to hand hoes only. The codes for this should "**NOT**" be read out to the farmer as a prompt.

Note: If remittance is given as the main source of finance check for a response to remittances in **question 2.2.5**

Question Specific Definitions (Q 13.0)**Section 13.0 Credit for Agriculture Purposes**

Credit is defined as finance in the form of cash or in-kind contributions (eg direct provision of inputs, machinery, livestock or other material) for the purpose of crop and livestock production whereby the value of the credit must be paid back to the borrower. The value of repayment may either be with interest or interest free.

Credit may be paid back in the form of cash or agriculture produce.

Section 13.0 Credit for Agriculture Purposes

Value of credit: is the amount in cash received from the borrower. If the credit was paid in-kind, estimate the value of this.

Value of repayment: This is the amount to be repaid to the borrower and includes the principal amount (value of credit) plus any interest repayment. If the credit is paid back in agriculture produce, then the cash value of this must be estimated.

Period of repayment: This is the time in **months** the borrower has given for full repayment.

Procedures for questions**Q 12.0 Farm Inputs**

1. Indicate in column 2 and 3 whether each of the implements were used or not.
2. Complete cols 4, 5, 6, and 8 for inputs that are used and place '9' in column 7 (for not applicable).
3. Complete cols 7 & 8 for inputs not used.

Section 13.2 Source of agriculture credit

If the farmer obtained credit from more than one source then use the columns "a", "b" and "c" for the different sources of credit. Start with the main source of credit in column "a".

NOTE: Check for use of inputs in column 7, 8 & 9 of questions 7.1.2, 7.2.2 & 7.3.2.

Working Area/calculation space

14.0 TREE FARMING/AGROFORESTRY

14.1 Did your household have any **Planted Trees** on your land during 2002/03 agric year? (Yes =1, No=2)
If the response is 'NO' go to section 14.3

14.2 Give details of the **planted trees** you have on your land.

S/N	Tree Code (1)	Number of trees (2)	Where planted (3)	Main Use (4)	Secondary Use (5)	Number of Plank trees Sold (6)	Number of Pole trees Sold (7)	hh utilised Number of		Total Value (Tsh.) (10)
								Poles (8)	Timber (9)	
14.2.1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14.2.2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14.2.3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14.2.4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Where Planted (Col 3)
 Mostly on field/plot boundaries...1
 Mostly scattered in fields2
 Mostly in plantation/coppice ...3

Use (Col 4 & 5)
 Planks/Timber.....1 Shade5
 Poles2 Medicinal.....6
 Charcoal3 Other8
 Fuel wood4

14.3 Does your village have a **Community tree planting scheme** (Yes=1, No=2)
If the response is 'NO' go to section 15.0

14.4 Household involvement in **community tree planting scheme**

S/N	Distance to community planted forest (Km) (1)	hh Involvement (2)	Main purpose (3)	Main use during 2002/03 (4)
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

HH involvement (Col 2)
 Only planting1
 Only protection and thinning.....2
 Only cutting3
 Most or all activities.....4

Main Purpose (Col 3)
 Erosion control.....1 Environment rehaiblitation ...4
 Production of poles2 Restoration of wildlife5
 production of firewood...3 Other (specify)8

Main Use during 02/03(Col 4)
 Poles1 Not ready to use5
 Timber logs2 Not allowed to use ...6
 Charcoal3 Other (specify)8
 Firewood4

15.0 CROP EXTENSION SERVICES

15.1 Did your household receive **extension advice for crop production** during 2002/03 (Yes=1,No=2)
If the response is 'NO' go to section 16.0

S/N	Extension Provider (1)	Source of extension (Y=1,N=2) (2)	If you pay for extension, what is the cost/yr (3)	Contact farmer /group member (Yes=1,No=2) (4)	No. of visits by extension agency per year (5)	No. of message adopted in the last 3 years (6)	Quality of Service (7)
15.1.1	Government extension	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.1.2	NGO/development project	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.1.3	Cooperative	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.1.4	Large Scale farmer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.1.5	Other.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Quality of service (Col 7)
 Very good1 good2 Average.....3 Poor.....4 No Good5

Definition and working page for page 11	
<p>General Definitions for section 14.0</p> <p>Tree Farming/Agroforestry</p> <p>This section refers to trees planted for wood (firewood, poles, planks, carving, charcoal, medicinal, etc, but NOT fruit trees). It does not include naturally growing trees on the farm (unless special care has been given to promote their establishment) or trees growing naturally on the communal areas.</p> <p>Tree farming is the planting of trees on an area of land for which the main purpose is the production and regeneration of trees for wood on that land.</p> <p>Agroforestry: is the planting of trees on land for the purpose of complementing other farming activities like crop and animal production. For the purpose of this questionnaire Agroforestry trees are trees planted on boundaries and scattered throughout fields. The main productive unit in this case is Crops and Livestock.</p>	<p>Section 14.2 Details of planted trees</p> <ol style="list-style-type: none"> 1. Enter the tree codes of the main species grown by the hh 2. If no planks or poles are sold enter a "0" in columns 8, & 9. 3. Total value includes both value of hh utilised trees and sold trees. 4. If no trees were utilised by the hh or sold enter "0" in column 10
<p>Question Specific Definitions</p> <p>Tree farming (Section 14.0)</p> <p>Pole trees (Col 6): These are young trees which have a maximum diameter of 6 inches at the bottom and are often used for house construction. They are often the thinning harvest after 3 - 5 years.</p> <p>Plank trees (Col 7): Trees for sawing into timber planks.</p> <p>Animal shade: Trees grown for the purpose of providing shade to animals.</p> <p>Community tree planting scheme (Section 14.3)</p> <p>Community Forest: A forest planted on the communal land which is planted, replanted or spot planted by the members of the village.</p> <p>Crop Extension Services (Section 15.1)</p> <p>Contact Farmer: A farmer who is used by the extension agent as a focal point to demonstrate new interventions. The contact farmer then passes on the message to other farmers</p> <p>Group member: Member of a group under which the contact farmer leads</p> <p>Adoption: This is the uptake of an intervention for 2 or more years</p>	<p>Section 15.1 Crop Extension Services</p> <ol style="list-style-type: none"> 1. For each of the extension providers ask if the hh received extension during 2002/2003 agriculture year and indicate in column 2. 2. For each of the providers complete the rest of the columns

Tree Name Guide Col 1

Code	Local Name	Botanical Name	English Name	Code	Local Name	Botanical Name	English Name
01		<i>Senna siamea</i>	Cassod tree	16			
02	Msongoma	<i>Gravellia</i>	Silver oak	17			
03	Mbarika	<i>Azelia quanzensis</i>	Pod mahogany	18			
04	Mkeshia	<i>Acacia spp</i>	Umbrella thorn	19			
05	Msindano	<i>Pinus spp</i>	Pine	20			
06	Mkaratusi	<i>Eucalyptus spp</i>	Red River Gum	21			
07		<i>Cyprus spp</i>	Cyprus tree	22			
08	Mtndoo	<i>Calophyllum inophyllum</i>		23			
09	Mvule	<i>Melicia excelsa</i>	Iroko	24			
10	Mvinji	<i>Casurina equisetifolia</i>	Whistling oak	25			
11	Msaji	<i>Tectona grandis</i>	Teak	26			
12	Mkungu wa kienyeji	<i>Terminalia catapa</i>	Sea almond	27			
13	Mkungu india	<i>Terminilia ivorensis</i>	Black afara	28			
14	Muhumula	<i>Maesopsis berchemoides</i>		29			
15				30			

15.2 Crop Extension Messages									
S/N	Extension Message	Received Advice	Adopted	Source of	S/N	Extension Message	Received Advice	Adopted	Source of
		Yes=1 No=2	Yes=1 No=2	Crop Extension			Yes=1 No=2	Yes=1 No=2	Crop Extension
	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
15.2.1	Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.9	Crop Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.2	Use of agrochemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.10	Vermin control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.3	Erosion control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.11	Agro-processing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.4	Organic fertiliser use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.12	Agro-forestry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.5	Inorganic fertiliser use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.13	Bee Keeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.6	Use of improved seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.14	Fish Farming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.7	Mechanisation/LST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15.2.15	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.8	Irrigation Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Source of extension (Col 4)
 Government1 NGO/Dev project ..2 Cooperative ...3 Large scale farmer4 Other (Specify) ...8 Not applicable9

16.0 LIVELIHOOD CONSTRAINTS

From the list of constraints on the right select:						List of constraints 1. Access to Land 2. Ownership of Land 3. Poor farm Inputs 4. Soil Fertility 5. Access to improved seed 6. Irrigation facilities 7. Access to chemical Inputs 8. Cost of Inputs 9. Extension Services 10. Access to forest resources 11. Hunting and Gathering 12. Access to potable water 13. Access to credit 14. Harvesting 15. Threshing 16. Storage 17. Processing 18. Market Information 19. Transport costs 20. Distruction by animals 21. Stealing 22. Pests and Diseases 23. Local government taxation 24. Access to off Farm Income	
16.1	the 5 most important problems			16.2	the 5 least important problems		
	Order of most importance	Constraint			Order of least importance		Constraint
	(1)	(2)			(1)		(2)
16.1.1	most important	<input type="checkbox"/>		16.2.1	Least important		<input type="checkbox"/>
16.1.2	2nd most important	<input type="checkbox"/>		16.2.2	2nd least important		<input type="checkbox"/>
16.1.3	3rd most important	<input type="checkbox"/>		16.2.3	3rd least important		<input type="checkbox"/>
16.1.4	4th most important	<input type="checkbox"/>		16.2.4	4th least important		<input type="checkbox"/>
16.1.5	5th most important	<input type="checkbox"/>		16.2.5	5th least important	<input type="checkbox"/>	
17.0 ANIMAL CONTRIBUTION TO CROP PRODUCTION							
17.1	Did you use Draft animals to cultivate your land during 02/03 (Yes=1, No=2) <input type="checkbox"/>				17.2	Did you apply organic fertiliser during 02/03 (Yes=1, No=2) <input type="checkbox"/>	
(If no, go to question 17.2)							
S/N	Type of Draft	Number owned	Number used	Area cultivated (acres)			
	(1)	(2)	(3)	(4)			
17.1.1	Oxen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
17.1.2	Bulls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
17.1.3	Cows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
17.1.4	Donkeys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
S/N	Type of organic Fertiliser	Area applied (acres)					
	(1)	(2)					
17.2.1	FYM	<input type="checkbox"/>					
17.2.2	Compost	<input type="checkbox"/>					

Definitions and working page for page 12

Question Specific Definitions

Crop Extension Advice (Section 15.2)

Mechanisation/LST: LST means Labour Saving Technology

Section 16.0 Livelihood constraints

16.1 List the five most important problems in order of most importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are a problem. Place a ✓ against the constraints that are a problem.
2. Read the selected constraints and ask the farmer to select 5 which create the largest problems
3. Ask the farmer to list these in order of importance and enter in column 2

16.2 List the five least important problems in order of least importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are **NOT** a problem. Place an ✗ against the constraints that are **NOT** a problem.
2. Read the selected constraints and ask the farmer to select 5 which create the least problems
3. Ask the farmer to list these in order of least importance and enter in column 2

Definitions and working page for page 13**General definitions for page 13**

Cattle Intake during 2002/03: Cattle purchased, given or born which increases the number of cattle in the herd.

Cattle Offtake during 2002/03:

Cattle removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 18.0)**Cattle type (Q 18.2 & 18.4, Col 1)**

Bull: Mature **Uncastrated** male cattle used for breeding

Cow: Mature female cattle that has given birth at least once

Steer: Castrated male cattle over 1 year

Heifer: Female cattle of 1 year up to the first calving

Calves: Young cattle under 1 year of age

Average Value per Head (Q 18.3, (Col 7 & 9) & 18.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Cattle vaccination (18.5 col 1)

ECF: East Coast Fever

FMD: Foot and Mouth Disease

CBPP: Contagious Bovine Pleura Pneumonia

Section 18.0 Cattle Population, Intake & Offtake.

NOTE: Section 18.1 is for the current population (as of 1st October 2003);
Section 18.2 and 18.3 is for movement in and out of the herd
during the 2002/03 agriculture year.
Section 18.4 is for diseases encountered during the agriculture year.

1. If the household has cows, you would normally expect them to have calves in column 8

2. If calves are reported in column 2, 3, or 4 (18.2.6, 18.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of cattle the importance of this must be reflected in Q 2.2.3

Section 18.5 If cattle are reported to have died in Column 5 then at least that number should be reported in 18.4 col 4

Working area for page 13

19.0 GOAT POPULATION, INTAKE AND OFFTAKE															
19.1 Did the household own, raise or manage any GOATS during the 2002/03 agriculture year? (Yes =1 No =2) <input type="checkbox"/>															
19.2 Goat Population as of 1st October 2003						19.3 Goat Intake during 2002/2003									
S/N	Goat type	Number of Indigenous	Number of Improved		Total	S/N	Number Purchased	Number given /obtained	Number Born	Total Intake of Goats	Average Value per head				
	(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)				
19.2.1	Billy Goat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.3.1	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>				
19.2.2	Castrated Goat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.3.2	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>				
19.2.3	She Goat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.3.3	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>				
19.2.4	Male Kid	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.3.4	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>				
19.2.5	She Kid	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.3.5	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>				
Grand Total					<input type="text"/>	Total Intake					<input type="text"/>				
19.4 Goat Offtake during 2002/2003								19.5 Goat diseases							
S/N	Goat type	Number Sold/traded	Number consumed by hh	Number given away/stolen	Number died	Total Goat Offtake	Average value per head	S/N	Disease/parasite	Number Infected	Number Treated	No. Rec-oved	Number Died	Last vacci nated	Main Sou -rce
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		(1)	(2)	(3)	(4)	(5)	(6)	(7)
19.4.1	Male goat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
19.4.2	Castrated Goat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.5.1	Foot Rot	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X
19.4.3	She Goat	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.5.2	CC PP	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
19.4.4	Male Kid	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.5.3	Helminthiosis	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X
19.4.5	She Kid	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	19.5.4	Tetanus	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Total Offtake						<input type="text"/>		19.5.5	Mange	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X
19.6 Milk Production							<u>Sold to Q19.6 Col 5)</u> Neighbour.....1 Largescale farm ..5 Local Market.....2 Trader at Farm ...6 Secondary Market ...3 Did not sell7 Processing industry .4 Other8			<u>Last Vaccinated (Col 6)</u> 20031 20004 20022 before 20005 20013 Not Vaccinated...6					
S/N	Season	Litres of milk/day	No. of Goats milked/day	Value/litre	Sold to	Sold/day (Litres)									
	(1)	(2)	(3)	(4)	(5)	(6)									
19.6.1	Wet Season	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>									
19.6.2	Dry Season	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>									
										<u>Main Source of vaccine (Col 7)</u> Private Vet Clinic ..1 Other8 District Vet Clinic ..2 Not Vaccinated9 NGO/Project.....3					

Definitions and working page for page 14**Goat definitions for page 14**

Goat Intake during 2002/03: Goat purchased, given or born which increases the number of goats in the herd.

Goat Offtake during 2002/03:

Goat removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 19.0)**Goat type (Q 19.2 & 19.4, Col 1)**

Billy Goat (he-goat): Mature **Uncastrated** male goat used for breeding

Castrated goat: Male goat that has been castrated.

She Goat: Mature female goat over 9 months of age

Kid: Young goat under 9 months of age.

Average Value per Head (Q 19.3, (Col 7 & 9) & 19.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Goat vaccination (19.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

LSD: Lumpy Skin Disease

Section 19.0 Goat Population, Intake & Offtake.

NOTE: Section 19.1 is for the current population (as of 1st October 2003); Section 19.2 and 18.3 is for movement in and out of the herd during the 2002/03 agriculture year. Section 19.4 is for diseases encountered during the agriculture year.

1. If the household has she goats, you would normally expect them to have kids in column 8
2. If kids are reported in column 2, 3, or 4 (19.2.6, 19.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of goats the importance of this must be reflected in Q 2.2.3

Section 19.5 If goats are reported to have died in Column 5 then at least that number should be reported in 19.4 col 4

Working area for page 14

20.0 SHEEP POPULATION, INTAKE AND OFFTAKE																			
20.1 Did the household own, raise or manage any SHEEP during the 2002/03 agriculture year? (Yes =1 No =2) <input type="checkbox"/>																			
(If no go to section 21.0)																			
20.2 Sheep Population as of 1st October 2003					20.3 Sheep Intake during 2002/2003														
S/N	Sheep type	Number of Indigenous	Number of Improved		Total	S/N	Number Purchased	Number given /obtained	Number Born	Total Intake of Sheep	Average Value per head								
			for Mutton	Dairy								(6)	(7)	(8)	(9)	(10)			
20.2.1	Ram	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	20.3.1	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>								
20.2.2	Castrated Sheep	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	20.3.2	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>								
20.2.3	She Sheep	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	20.3.3	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	<input type="text"/>								
20.2.4	Male lamb	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	20.3.4	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>								
20.2.5	She lamb	<input type="text"/>	<input type="text"/>	X X X	<input type="text"/>	20.3.5	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>								
Grand Total					<input type="text"/>														
20.4 Sheep Offtake during 2002/2003							20.5 Sheep diseases												
S/N	Sheep type	Number Sold/traded	Number consumed by hh	Number given away/stolen	Number died	Total Sheep Offtake	Average value per head	S/N	Disease/parasite	Number Infected	Number Treated	No. Rec-overed	Number Died	Last vaccinated	Main Source				
																(1)	(2)	(3)	(4)
20.4.1	Ram	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>												
20.4.2	Castrated Sheep	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	20.5.1	Foot Rot	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X				
20.4.3	She Sheep	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	20.5.2	CC PP	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>						
20.4.4	Male lamb	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	20.5.3	Helminthiosis	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	X	X				
20.4.5	She lamb	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	20.5.4	Trypanosomiasis	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>						
Total Offtake						<input type="text"/>						20.5.5	FMD	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
										<p>Last Vaccinated (Col 6)</p> <p>20031 20004</p> <p>20022 before 20005</p> <p>20013 Not Vaccinated...6</p>									
										<p>Main Source of vaccine (Col 7)</p> <p>Private Vet Clinic ..1 Other8</p> <p>District Vet Clinic ..2 Not applicable9</p> <p>NGO/Project.....3</p>									

Definitions and working page for page 15**Sheep definitions for page 15**

Sheep Intake during 2002/03: Sheep purchased, given or born which increases the number of Sheep in the herd.

Sheep Offtake during 2002/03:
Sheep removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 20.0)**Sheep type (Q 20.2 & 20.4, Col 1)**

Ram: Mature **Uncastrated** male goat used for breeding

Castrated sheep: Male sheep that has been castrated.

Ewe: Mature female sheep over 9 months of age

Lamb: Young sheep under 9 months of age.

Average Value per Head (Q 20.3, (Col 7 & 9) & 20.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Sheep vaccination (20.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

Section 20.0 Sheep Population, Intake & Offtake.

NOTE: Section 20.1 is for the current population (as of 1st October 2003);
Section 20.2 and 20.3 is for movement in and out of the herd during the 2002/03 agriculture year.
Section 20.4 is for diseases encountered during the agriculture year.

1. If the household has ewes, you would normally expect them to have kids in column 8
2. If lambs are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Sheep the importance of this must be reflected in Q 2.2.3

Section 20.5 If Sheep are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 15

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21.0 PIG POPULATION AND PRODUCTION															
21.1		Did the household own, raise or manage any PIGS during the 2002/03 agriculture year (Yes =1 No =2) <input type="checkbox"/>													
21.2		PIG Population as of 1 st October 2003					21.3 Pig increase during 2002/2003								
S/N		Pig type	Number	S/N	Number Purchased	Number given /obtained	Number Born	Total Pig Increase		Average Value per head					
		(1)	(2)	(3)	(4)	(5)	(9)		(10)						
21.2.1		Boar		21.3.1			X X X								
21.2.2		Castrated male		21.3.2			X X X								
21.2.3		Sow/Gilt		21.3.3			X X X								
21.2.4		Male piglet		21.3.4											
21.2.5		She piglet		21.3.5											
Grand Total															
21.4 Pig decrease during 2002/2003							21.5 Pig diseases/pests/conditions								
S/N	Pig type	Number Sold/traded	Number consumed by hh	Number given away/stolen	Number died	Total Pig Offtake	Average value per head	S/N	Disease/ parasite	Number Infected	Number Treated	No. Rec -overed	Number Died	Last vacci nated	Main Sou -rce
	(1)	(2)	(3)	(4)	(5)	(6)	(7)		(1)	(2)	(3)	(4)	(5)	(6)	(7)
21.4.1	Boar														
21.4.2	Castrated male							21.5.1	Anthrax						
21.4.3	Sow/Gilt							21.5.2	ASF						
21.4.4	Male piglet							21.5.3	Anemia					X	X
21.4.5	She piglet							21.5.4	Helmenthiosis					X	X
Total Offtake															
22.0 LIVESTOCK PEST & PARASITE CONTROL							22.3 Do you normally encounter a tick problem (Yes=1, No=2) <input type="checkbox"/>		Last Vaccinated (Col 6)						
							(If the response is 'NO' go to section 22.5)		2003 ..1 20004						
22.1		Did you deworm your animals during 2002/03 (Yes=1, No=2) <input type="checkbox"/>				22.4 Which methods of tick control did you use <input type="checkbox"/>		2002 ..2 before 20005							
		(If the response is 'NO' go to section 22.3)				Control method (Q 22.4) None..1 Spraying ..2 Dipping..3 Smearing ..4 Other..8		2001 ...3 Not Vaccinated..6							
						22.5 Do you normally encounter a tsetse fly problem (Y=1,N=2) <input type="checkbox"/>		Main Source (Col 7)							
						(If the response is 'NO' go to section 23.0)		Private Vet Clinic ..1							
22.2		Which animals did you deworm ? (Tick appropriate boxes)				22.6 Which methods of control did you use <input type="checkbox"/>		District Vet Clinic ..2							
		Cattle <input type="checkbox"/>	Goats <input type="checkbox"/>	Sheep <input type="checkbox"/>	Pigs <input type="checkbox"/>	Control method (Q22.6) None .1 Spray .2 Dipping .3 Trapping .4 Other .8		NGO/Project.....3							
								Other8							
								Not applicable9							

Definitions and working page for page 16**Pigs definitions for page 16**

Pig Intake during 2002/03: Pigs purchased, given or born which increases the number of Pigs in the production unit.

Pig Offtake during 2002/03:

Pigs removed from the production unit, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 21.0)**Pigs type (Q 21.2 & 21.4, Col 1)**

Boar: Mature **Uncastrated** male pig used for breeding

Castrated Pig: Male pig that has been castrated.

Sow: Mature female pig that has given birth to at least one litter of pigs.

Gilt: Female pig of 9 months up to the first farrowing.

Piglet: Young pig under 3 months of age.

Average Value per Head (Q 21.3, (Col 7 & 9) & 21.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Pig vaccination (21.5 col 1)

ASF: African Swine Fever

Section 21.0 Pig Population, Intake & Offtake.

NOTE: Section 21.1 is for the current population (as of 1st October 2003); Section 21.2 and 21.3 is for movement in and out of the herd during the 2002/03 agriculture year. Section 21.4 is for diseases encountered during the agriculture year.

1. If the household has sows, you would normally expect them to have piglets in column 8
2. If piglets are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Pigs the importance of this must be reflected in Q 2.2.3

Section 20.5 If Pigs are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 16

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23.0 Other Livestock currently available and details of consumption and sales during the last 12 months						
	Animal type	Current Number	Sold during 2002/03		Consumed during 2002/03	
			Number	Average Value/head	Number	Average Value/head
		(1)	(2)	(3)	(4)	(5)
23.1	Indigenous Chicken	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
23.2	Layer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
23.3	Broiler	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
23.4	Ducks	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
23.5	Turkeys	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
23.6	Rabbits	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
23.7	Donkeys	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
23.8	Horses	<input type="text"/>	<input type="text"/>	<input type="text"/>	X X X	X X X X X
23.9	Other	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
24.0	CHICKEN DISEASES	Number infected	Number Treated	Number Died	Number Recovered	
24.1	Newcastle Disease	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
24.2	Gumboro	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
24.3	Coccidiosis	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
24.4	Chorysa	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
24.5	Fowl typhoid	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
25.0	LIVESTOCK PRODUCT	Sold during 2002/03		Consumed/utilised during 2002/03		
		Number	Average Value/unit	Number	Average Value/unit	
25.1	Eggs	<input type="text"/>	X <input type="text"/>	<input type="text"/>	<input type="text"/>	
25.2	Hides	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
25.3	Skins	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
26.0	List in order of importance the outlets for the sale of Livestock					
S/N	Impo-rtance of outlet	Outlets for Cattle	Out-lets for Goat	Outlets for Sheep	Outl-ets for Pigs	Outlets for Chick-ens
	(1)	(2)	(3)	(4)	(5)	(6)
26.1	1st	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
26.2	2nd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
26.3	3rd	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
26.4	4th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
26.5	5th	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Outlet code (Col 2, 3, 4 & 5) Trader at farm1 Abattoir/factory5 Local Market2 Another farmer6 Secondary market/auction3 Other (Specify)8 Neighbour4						
Source of structure (Q27.0 - Col 2) Owns1 NGO6 Cooperative2 Large scale farm7 Local farmers association3 Other8 Gov extension/veterinary4 Not applicable9 Development project5						
27.0	Access to functional Livestock structures /accessories					
S/N	Type of structure/ accessory	Source of Structure	Distance to struct-ure (Km)			
	(1)	(2)	(3)			
27.1	Cattle Dip	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.2	Spray Race	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.3	Hand powered sprayer	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.4	Cattle crush	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.5	Primary Market	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.6	Secondary Market	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.7	Abattoir	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.8	Slaughter Slab	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.9	Hide/skin shed	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.10	Input supply	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.11	Veterinary Clinic	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.12	Village holding ground	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.13	village watering point/dam	<input type="text"/>	<input type="text"/>	<input type="text"/>		
27.14	Drencher	<input type="text"/>	<input type="text"/>	<input type="text"/>		

Definition and working page for page 17
Question Specific Definitions Section 26.0)
Procedures for questions
Section 23.0 - Other Livestock:

1. The current number includes both adult and young animals. For example The number of chickens in col 1 would include adults and chicks.

Question Specific Definitions Section 27.0)
Access to functional Livestock Structures/accessories (Section 27.0):

NOTE: The structures must be functional. If they are not working/derelect then they should not be included. The distance to the next nearest functional structure should be taken.

Spray Race: A fixed spray structure on an animal race for spraying acaricide

Cattle crush: Corridor structure for restraining cattle.

Abattoir: Large building designed for slaughtering a large amount of animals. It normally has complex structures to assist in the slaughter and storage and a high level of hygiene is maintained.

Slaughter Slab: Concrete slab designed for slaughtering a small amount of animals

Hides: obtained from Cattle

Skins: Obtained from sheep and goats

Hide/Skin Shed: Shed for curing/tanning animal skins and hides

Village holding Pen: Enclosure for containing large amount of livestock which is owned communally.

Drencher: Device for orally administering medicine to livestock. If no product was sold in 2002 enter "0" in columns 6, 7 & 9.

Section 26.0 - Outlets for livestock:

Using the codes enter the outlets for the sale of different livestock in order of importance. If there are, for example, only 2 outlets mark the rest with a "X".

28.0 FISH FARMING

28.1 Was **Fish farming** carried out by this household during 2002/2003? (Yes =1, No=2) (If the response is 'NO' go to section 29.0)

28.2 Specify details of **fish farming practices**

S/N	Product ion unit number	Fish farming system	Size of unit/pond (m2)	Source of fingerling	frequency of stocking (No/year)	Number of stocked fish			Number of fish harvested	weight of fish harvested	weight of fish sold	Mainly sold to
						Tilapia	Carp	Other				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
28.1.1	1	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
28.1.2	2	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
28.1.3	3	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Farming System (Col 2)
 Natural Pond...1 Natural Lake...3 Other...8
 Dug out pond...2 Water reservoir...4

Source of fingerlings (Col 4)
 Own pond...1 NGO/Project...3 Private trader...5
 Government Institution...2 Neighbour...4 Other...8

Mainly sold to (Col 12)
 Neighbour...1 Secondary Market...3 Large scale farm...5 Did not sell...7
 Local Market...2 Processing industry...4 Trader at Farm...6 Other...8

29.0 LIVESTOCK EXTENSION

29.1 Did you receive **livestock extension advice** during 02/03 (Yes=1, No=2) (If the response is 'NO' go to section 30.0)

S/N	Livestock Extension Message	Received Advice Yes=1, No=2	Adopted Yes=1 No=2	Source of Livestock Extension
	(1)	(2)	(3)	(4)
29.1.1	Feed and Proper feeding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.2	Housing (Goat, Dairy, Poultry, Pigs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.3	Proper Milking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.4	Milk Hygiene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.5	Disease control (dipping/spraying)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.6	Herd/Flock size and selection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.7	Pasture Establishment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.8	Group formation and strengthening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.9	Calf rearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.10	Use of improved bulls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.1.11	Other livestock extension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source of livestock extension (Col 4)
 Government...1 NGO/Dev project...2 Cooperative...3 Large scale farmer...4 Other (Specify)...8

29.2 For the following **Livestock Extension Service Providers** give details

S/N	Extension Provider	If you pay for extension, what is the cost/yr	Contact farmer/group member	No. of visits by extension agency/year	No. of mess -ages adopted in the last 3 yrs	Quality of Service
	(1)	(2)	(3)	(4)	(5)	(6)
29.2.1	Government	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
29.2.2	NGO/dev project	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
29.2.3	Cooperative	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
29.2.4	Large Scale farmer	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
29.2.5	Other.....	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

Quality of service (Col 6) Very good...1 good...2 Average...3 Poor...4 No Good...5

30.0 GOVERNMENT REGULATORY PROBLEMS

31.1 Did you face problems with government regulations during 2002/03 (Y=1, N=2)

List in order of importance (If the response is no go to section 31.0)

	Problem code	Problem code
30.1.1	1st	Land ownership by government...1
30.1.2	2nd	Restriction of sale between regions...2
30.1.3	3rd	Import of food items...3
		Other (specify)...8

Definitions and working page for page 18

General definitions for Section 28.0

Fish farming: Refers to the rearing/production of fish. It is different to fishing in that the fish have to be reared and fed in fish farming. Fishing traps or captures naturally occurring fish in rivers, lakes and the sea and should not be included in this section.

Question Specific Definitions (Section 28.2)

Production unit number (Col 1): A production unit is a pond river/lake which is treated as a separate entity for the production of fish eg it may be by virtue of manageable size, maturity of fish, type of fish etc. Eg a farmer may have 3 fish ponds. (each one is a separate production unit).

Frequency of stocking (Col 5): What is the number of times the farmer puts new fingerlings into the pond each year.

Fingerlings: These are young immature fish used for stocking ponds.

Sold: (Col 10 & 11)

If no fish were sold enter "0" in column 10 and 11)

Livestock Extension Services (Section 29.1)

Adopted (Col 3): This is the uptake of an intervention for 2 or more years

Livestock Extension Service providers (Section 29.2)

Contact Farmer: A farmer who is used by the extension services as a focal point to demonstrate new interventions to. The contact farmer then passes on the message to other farmers

Adopted (Col 5): This is the uptake of an intervention for 2 or more years

Working area for page 18

31.0 LABOUR USE

31.1 Who is **mainly** responsible for undertaking the following tasks:

S/N	Activity	Tick if carried out by hh	Main responsibility
	(1)	(2)	(3)
31.1.1	Land Clearing	<input type="checkbox"/>	<input type="checkbox"/>
31.1.2	Soil preparation (by hand)	<input type="checkbox"/>	<input type="checkbox"/>
31.1.3	Soil preparation (oxen/tractor)	<input type="checkbox"/>	<input type="checkbox"/>
31.1.4	Planting	<input type="checkbox"/>	<input type="checkbox"/>
31.1.5	Weeding	<input type="checkbox"/>	<input type="checkbox"/>
31.1.6	Crop Protection	<input type="checkbox"/>	<input type="checkbox"/>
31.1.7	Harvesting	<input type="checkbox"/>	<input type="checkbox"/>
31.1.8	Crop processing	<input type="checkbox"/>	<input type="checkbox"/>
31.1.9	Crop marketing	<input type="checkbox"/>	<input type="checkbox"/>
31.1.10	Cattle rearing/husbandry	<input type="checkbox"/>	<input type="checkbox"/>
31.1.11	Cattle herding	<input type="checkbox"/>	<input type="checkbox"/>
31.1.12	Cattle marketing	<input type="checkbox"/>	<input type="checkbox"/>
31.1.13	Goat/sheep rearing/husbandry	<input type="checkbox"/>	<input type="checkbox"/>
31.1.14	Goat and sheep herding	<input type="checkbox"/>	<input type="checkbox"/>
31.1.15	Goat and sheep marketing	<input type="checkbox"/>	<input type="checkbox"/>
31.1.16	Milking	<input type="checkbox"/>	<input type="checkbox"/>
31.1.17	Pig rearing/husbandry	<input type="checkbox"/>	<input type="checkbox"/>
31.1.18	Poultry keeping	<input type="checkbox"/>	<input type="checkbox"/>
31.1.19	Collecting Water	<input type="checkbox"/>	<input type="checkbox"/>
31.1.20	Collecting Firewood	<input type="checkbox"/>	<input type="checkbox"/>
31.1.21	Pole cutting	<input type="checkbox"/>	<input type="checkbox"/>
31.1.22	Timber wood cutting	<input type="checkbox"/>	<input type="checkbox"/>
31.1.23	Building/maintaining house	<input type="checkbox"/>	<input type="checkbox"/>
31.1.24	Making Beer	<input type="checkbox"/>	<input type="checkbox"/>
31.1.25	Bee keeping	<input type="checkbox"/>	<input type="checkbox"/>
31.1.26	Fishing	<input type="checkbox"/>	<input type="checkbox"/>
31.1.27	Fish farming	<input type="checkbox"/>	<input type="checkbox"/>
31.1.28	Off-farm income generation	<input type="checkbox"/>	<input type="checkbox"/>

Responsibility (Col 3)
 HH head alone1 Girls6
 Adult Males2 Boys & Girls7
 Adult Females.....3 All household members.....8
 Adults.....4 Hired labour9
 boys 5

Satisfied with service (Col 4)
 Very good1 Average.....3 No good5
 Good2 Poor4 Not applicable 9

32.0 SUBSISTENCE vs NON-SUBSISTENCE

32.1 Indicate if any members of the household was involved in the following activities and assess the **percentage used for subsistence/consumption** by the household:

S/N	Activity	Tick if hh was involved in activity	Estimate % used for subsistence	Estimate % used for non subsistence	Check Total
	(1)	(2)	(3)	(4)	(5)
32.1.1	Crop production	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.2	Livestock production	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.3	Vegetable production	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.4	Tree cutting for firewood	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.5	Tree logging for poles	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.6	Tree logging for timber	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.7	Tree logging for charcoal	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.8	fishing	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.9	bee keeping	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.10	employment/off farm	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.11	employment/off farm	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
32.1.12	Remittances	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

33.0 ACCESS TO INFRASTRUCTURE & OTHER SERVICES

S/N	Type of service	Distance in Km	S/N	Type of service	Distance in Km
	(1)	(2)		(1)	(2)
33.1	Primary School	<input type="text"/>	32.7	Feeder Road	<input type="text"/>
33.2	Secondary School	<input type="text"/>	32.8	All weather road	<input type="text"/>
33.3	Health Clinic	<input type="text"/>	32.9	Tarmac road	<input type="text"/>
33.4	Hospital	<input type="text"/>	32.10	Primary market	<input type="text"/>
33.5	District Capital	<input type="text"/>	32.11	Secondary market	<input type="text"/>
33.6	Regional Capital	<input type="text"/>	32.12	Tertiary market	<input type="text"/>

S/N	Type of service	Distance in Km	No of visits/year	Satisfied with service
	(1)	(2)	(3)	(4)
33.13	Vet Clinic	<input type="text"/>	<input type="text"/>	<input type="text"/>
33.14	Extension Centre	<input type="text"/>	<input type="text"/>	<input type="text"/>
33.15	Research Station	<input type="text"/>	<input type="text"/>	<input type="text"/>
33.16	Plant protection Lab	<input type="text"/>	<input type="text"/>	<input type="text"/>
33.17	Land registration office	<input type="text"/>	<input type="text"/>	<input type="text"/>
33.18	Livestock Dev Centre	<input type="text"/>	<input type="text"/>	<input type="text"/>

Definition and working page for page 19**Question specific definitions (Section 31.1)****Activity (Col 1):**

Land Clearing: Refers to removing trees/bush/grass prior to ploughing

Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc).

Cattle Rearing: Tending to cattle at home, eg assisting with births, castration, etc. Different livestock keeping activity to herding.

Cattle Herding: Moving livestock from place to place for grazing and water. If herding is carried out the respondent must also give a response to rearing/husbandry

Question Specific Definitions (Section 32.0.0)**Activity (Col 1):**

Subsistence: For the family's survival, rather than for the generation of cash. This includes feeding the hh, provision of water and fuel for cooking. The source of these products are usually from the land resources available to the family. Remember that not all cash earnings are for non subsistence purposes/activities as cash can be used to purchase subsistence items eg food.

Non -subsistence: Cash used for items and activities which are not crucial for the survival of the family. This includes modern medication, non working clothes, refined beer, school fees, etc.

Procedures for (Section 31.1)**Section 31.1 ((Labour use)**

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.
2. After completing column 2 return to the first activity in row 27.1.1 and complete column 3.
3. Make sure you stress MAINLY responsible.

NOTE: If an activity has been mentioned previously in the questionnaire eg that the hh keeps chickens, make sure a response is obtained in the appropriate place ie poultry keeping.

If off-farm income generation is mentioned, check for responses to off farm income in other parts of the questionnaire

Section 32.0 - Subsistence vs Non-subsistence

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.
2. After completing column 2 return to the first activity in row 32.1.1 and complete column 3 & 4. For each activity make an assessment of the percentage used for subsistence survival and the percent converted to cash for non subsistence goods and items.
3. Make sure you stress MAINLY responsible.

NOTE: Cross check the responses with previous sections in the questionnaire. eg if a response is given to remittances check for an entry in question 2.2.5

34.0 HOUSEHOLD FACILITIES																												
<p>34.1 House Construction</p> <p>For the main dwelling, what are the main building materials used in the construction of the following</p> <p>34.1.1: Roof <input type="checkbox"/> 34.1.2 Number of rooms <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Roof Material</p> <p>Iron Sheets.....1</p> <p>Tiles2</p> <p>Concrete3</p> <p>Asbestos4</p> <p>Grass/leaves.....5</p> <p>Grass & mud.....6</p> <p>Other (Specify) 8</p> </div>	<p>34.2 Household assets</p> <p>Does your household own the following?</p> <table border="1"> <thead> <tr> <th>Asset</th> <th>Y=1</th> <th>N=2</th> </tr> </thead> <tbody> <tr> <td>34.2. Radio/cassette, music system)</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2. Telephone (landline)</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2. Telephone (mobile)</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2. Iron</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2. Wheelbarrow</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2. Bicycle</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2. Vehicle</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2. Television</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Asset	Y=1	N=2	34.2. Radio/cassette, music system)	<input type="checkbox"/>	<input type="checkbox"/>	34.2. Telephone (landline)	<input type="checkbox"/>	<input type="checkbox"/>	34.2. Telephone (mobile)	<input type="checkbox"/>	<input type="checkbox"/>	34.2. Iron	<input type="checkbox"/>	<input type="checkbox"/>	34.2. Wheelbarrow	<input type="checkbox"/>	<input type="checkbox"/>	34.2. Bicycle	<input type="checkbox"/>	<input type="checkbox"/>	34.2. Vehicle	<input type="checkbox"/>	<input type="checkbox"/>	34.2. Television	<input type="checkbox"/>	<input type="checkbox"/>
Asset	Y=1	N=2																										
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34.2. Bicycle	<input type="checkbox"/>	<input type="checkbox"/>																										
34.2. Vehicle	<input type="checkbox"/>	<input type="checkbox"/>																										
34.2. Television	<input type="checkbox"/>	<input type="checkbox"/>																										
<p>34.3 Energy use by the Household</p> <p>Energy use and access by the household</p> <p>Main Source of energy for</p> <p>34.3.1 Lighting <input type="checkbox"/> 34.3.2 Cooking <input type="checkbox"/></p> <div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p>Lighting energy</p> <p>Mains electricity.....01</p> <p>Solar02</p> <p>Gas (biogas)03</p> <p>Hurricane Lamp04</p> <p>Pressure Lamp05</p> <p>Wick Lamp06</p> <p>Candles07</p> <p>Firewood08</p> <p>Other (specify) 98</p> </div> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p>Cooking energy</p> <p>Mains electricity.....01</p> <p>Solar02</p> <p>Gas (hh biogas)03</p> <p>Bottled gas04</p> <p>Paraffin/kerocine.....05</p> <p>Charcoal.....06</p> <p>Firewood07</p> <p>Crop Residues08</p> <p>Livestock dung09</p> <p>Other (specify)98</p> </div> </div>	<p>34.4 Access to drinking water</p> <table border="1"> <thead> <tr> <th>Season</th> <th>Main source of drinking water</th> <th>Distance to source (in km)</th> <th>Time to and from source (Hour : minute)</th> </tr> <tr> <th>(1)</th> <th>(2)</th> <th>(3)</th> <th>(4)</th> </tr> </thead> <tbody> <tr> <td>34.4. Wet Season</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/> . <input type="checkbox"/></td> <td><input type="checkbox"/> : <input type="checkbox"/></td> </tr> <tr> <td>34.4. Dry Season</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/> . <input type="checkbox"/></td> <td><input type="checkbox"/> : <input type="checkbox"/></td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px;"> <p>Main Source of drinking water</p> <p>Piped water01</p> <p>Protected well02</p> <p>Protected/covered spring03</p> <p>Unprotected Well04</p> <p>Unprotected spring05</p> <p>Surface water (lake/dam/river/stream)06</p> <p>Covered rainwater catchment ...07</p> <p>Uncovered rainwater catchment 08</p> <p>Water Vendor09</p> <p>Tanker truck10</p> <p>Bottled water11</p> <p>Other (Specify)98</p> </div>	Season	Main source of drinking water	Distance to source (in km)	Time to and from source (Hour : minute)	(1)	(2)	(3)	(4)	34.4. Wet Season	<input type="checkbox"/>	<input type="checkbox"/> . <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>	34.4. Dry Season	<input type="checkbox"/>	<input type="checkbox"/> . <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>											
Season	Main source of drinking water	Distance to source (in km)	Time to and from source (Hour : minute)																									
(1)	(2)	(3)	(4)																									
34.4. Wet Season	<input type="checkbox"/>	<input type="checkbox"/> . <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>																									
34.4. Dry Season	<input type="checkbox"/>	<input type="checkbox"/> . <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>																									
<p>34.5 Access to toilet facilities</p> <p>34.5.1 What type of toilet does your hh use <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Type of toilet</p> <p>No toilet/bush.....1</p> <p>Improved pit latrine - hh owned.....4</p> <p>Flush toilet2</p> <p>Other type (specify)5</p> <p>Pit latrine - traditional ..3</p> </div>	<p>34.6 Food consumption patterns</p> <p>34.6. Number of meals the hh normally has per day <input type="checkbox"/></p> <p>34.6. Number of days hh consumed meat last w <input type="checkbox"/>k</p> <p>34.6. How often did the hh have problems in satisfying the food needs of the hh last year? <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Problems satisfying hh food needs (row 34.6.3)</p> <p>Never1</p> <p>Seldom2</p> <p>Sometimes3</p> <p>Often4</p> <p>Always5</p> </div>																											
<p>34.7 Source of Household income</p> <p>34.7.1 What is the households main source of cash income? <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Source of Income codes</p> <p>Sale of food crops01</p> <p>Sale of Livestock.....02</p> <p>Sale of livestock products ...03</p> <p>Sale of cash crops.....04</p> <p>Sale of forest products05</p> <p>Business income.....06</p> <p>Wages or salaries in cash07</p> <p>Other casual cash earnings ..08</p> <p>Cash remittances09</p> <p>Fishing10</p> <p>Other98</p> <p>Not applicable99</p> </div>																												

Definition and working page for page 20**Household facilities (Section 34):****Number of rooms used for sleeping in the household (Q 34.1)**

Include sitting room, dining room, kitchen, etc if used for sleeping. It also includes rooms outside the main dwelling

A room is defined as a space which is separate from the rest of the building by a permanent wall or division. A building/house that is not divided into rooms is considered to have one room.

Household assets (Q 34.2): these assets must be functioning. Do not include if broken.

Access to drinking water (Q 34.4): If there is more than one source, use the one, which the hh uses most frequently.

Main source of hh cash income:

Activity that provides the hh with the most cash during 2002/03 agriculture year.

Average/maximum yields						Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop					
Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre			
	Average	Max	Average	Max		Average	Max	Average	Max		
11 Maize	1200	6250	486	2530	86 Cabbage			0	0		
12 Paddy	700	4000	283	1619	87 Tomatoes			0	0		
13 Sorghum	750	3500	304	1417	88 Spinach			0	0		
14 Bulrush Millet	350	3000	142	1215	89 Carrot			0	0		
15 Finger Millet	300	2500	121	1012	90 Chillies			0	0		
16 Wheat	1200	4500	486	1822	91 Amaranths			0	0		
17 Barley	1400	2300	567	931	92 Pumpkins			0	0		
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0		
22 Sweet Potato	600	8000	243	3239	94 Egg Plant			0	0		
23 Irish potatoes	750	8500	304	3441	95 Water Mellon			0	0		
24 Yams	4000	10000	1619	4049	96 Cauliflower			0	0		
25 Cocoyams	2500	5000	1012	2024	52 Sisal	800	25000	324	10121		
26 Onions			0	0	54 Coffee	500	100	202	40		
27 Ginger			0	0	55 Tea	2500	10000	1012	4049		
31 Beans	400	1300	162	526	56 Cacao	200	1000	81	405		
32 Cowpeas	300	1750	121	709	57 Rubber	400	1400	162	567		
33 Green gram			0	0	58 Wattle			0	0		
34 Pigeon pea	600	2000	243	810	59 Kapok			0	0		
35 Chick peas	500	1500	202	607	60 Sugar Cane	60000	150000	24291	60729		
36 Bambara nut	600	4000	243	1619	61 Cardamom			0	0		
41 Sunflower	600	1700	243	688	71 Banana	10000	50000	4049	20243		
42 Simsim	300	1000	121	405	72 Avocado			0	0		
43 Groundnut	600	4000	243	1619	73 Mangoes	10000	25000	4049	10121		
47 Soyabeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340		
48 Caster seed	300	750	121	304	76 Orange	20000	40000	8097	16194		
75 Pineapple	25000	60000	10121	24291	77 Grape fruit	30000	50000	12146	20243		
50 Cotton	300	1500	121	607	78 Grapes	5000	30000	2024	12146		
51 Tobacco	500	2000	202	810	79 Mandarin/tange	20000	40000	8097	16194		
53 Pyrethrum			0	0	80 Guava	7000	35000	2834	14170		
62 Jute	800	3500	324	1417	81 Plums			0	0		
44 Palm Oil	1200	5000	486	2024	82 Apples			0	0		
45 Coconut	2000	8000	810	3239	83 Pears			0	0		
46 Cashewnut	9	60/tree	4	24	84 Pitches			0	0		

Back Page Reference material

This page contains reference information that may be required to complete some of the questions in the questionnaire.

Weights and measures

1 hectare = 10,000 sq metres (100 x 100 metres)
 1 kilometre = 1000 metres
 1 acre = 4840 square yards (110 x 44 yards)

Conversions

1 hectare = 2.47 acres
 1 mile = 1.61 Kilometres

Kg equivalents

The following standards may be used as a guide to obtain kg if the reported unit is different. Only use these conversions if the respondent is unable to provide weights in kgs.

	Crop Name	Number of Kgs			
		Standard		Non-standard	
		Bag	Tin	Name	kgs
11	Maize	100	18	Rumbesi	140
12	Paddy	75	15		
13	Sorghum	100	18		
14	Bulrush Millet	100	18		
15	Finger Millet	120	20		
16	Wheat	75	15		
17	Barley	75	15		
21	Cassava	60	12		
22	Sweet Potatoe	80	16		
23	Irish potatoes	80	16		
24	Yams	80	16		
25	Cocoyams	80	16		
26	Onions	80	16		
27	Ginger	75	15		
31	Beans	100	20		
32	Cowpeas	100	20		
33	Green ram	100	20		
34	Pigeon pea	100	20		
35	Chick peas	100	20		
36	Bambara nut	100	20		
41	Sunflower	60	12		
42	Simsim	100	20		
43	Groundnut	50	10		
47	Soyabeans	100	20		
48	Caster seed	100	20		
75	Pineapple	90	18		
50	Cotton	50	10		
51	Tobacco	70	14		
53	Pyrethrum	60	12		
62	Jute	50	10		
44	Palm Oil	100			
45	Coconut	75			
46	Cashewnut	80			
86	Cabbage	50			
87	Tomatoes	90			
88	Spinach	45			
89	Carrot	110			
90	Chillies	85			
91	Amaranths	50			
92	Pumpkins	60			
93	Cucumber	80			
94	Egg Plant	70			
95	Water Mellon	80			
96	Cauliflower	50			
52	Sisal	130			
54	Coffee	55			
55	Tea	60			
56	Cacao	60			
57	Rubber				
58	Wattle	90			
59	Kapok				
60	Sugar Cane	120			
61	Cardamom	100			
71	Banana	120			
72	Avocado	140			
73	Mangoes	130			
74	Papaw	100			
76	Orange	130			
77	Grape fruit	120			
78	Grapes	80			
79	Mandarin/tange	110			
80	Guava	110			
81	Plums	110			
82	Apples	110			
83	Pears	110			
84	Pitches	110			

For official use only:

If a question has a query, an indication will be made by the supervisor/data entry controller on the front page of the questionnaire. This space is to note what and where the problem is, the action required to be taken and the responsible person to take follow up action.

Nature of the problem:

Action Required: National supervisor action

Field supervisor action

Overall Status: Does not affect overall integrity of the questionnaire.
 More data is required before it can be used

Discard and resample
 Discard as missing data